The Bible Code II • The James Ossuary Controversy • Jack the Ripper: Case Closed?

Skeptical Inquirer

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Steven Pinker

The Blank Slate

The Modern Denial of Human Nature

The Importance of Missing Information

Acupuncture, Magic, and Make-Believe

Walt Whitman: When Science and Mysticism Collide

SPECIAL REPORTS

Timothy Ferris on Spielberg's series 'Taken'
James Oberg on the 'Fake Moon Flight' Myth
David Thomas on 'Roswell: The Smoking Gun'

Published by the Committee for the Scientific Investigation of Claims of the Paranormal

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EDITOR'S NOTE

Taking Intellectual Life Out of Its Parallel Universe

The nature/nuture controversy can be irksome. That culture (environment) and our genes both contribute in a complex mixture of interactive ways to everything that makes us human seems reasonable, and it is a view well supported by modern biological science. Yet as Steven Pinker points out in this issue, the idea that heredity plays any role at all in explaining human thought and behavior "still has the power to shock. . . . Any claim that the mind has an innate organization strikes people not as a hypothesis that might be correct but as a thought it is immoral to think." In "The Blank Slate," taken from his new book of the same title, Pinker examines the doctrine that our minds emerge from birth blank, unaffected by hard-wired influences of human evolution. He maintains he is not countering an extreme "nature" position with an extreme "nature" position. But he explores "why the extreme position (that culture is everything) is so often seen as moderate, and the moderate position is seen as extreme."

Pinker, the Peter de Florez Professor of Psychology at MIT, author of *How the Mind Works* and *The Language Instinct*, and a CSICOP Fellow, does not mind academic controversy. He shows how the modern denial of human nature has "led to a disconnect between intellectual life and common sense" and "left us unequipped to analyze pressing issues about human nature just as new scientific discoveries are making them acute." Pinker says acknowledging human nature, although unpopular in many intellectual circles where ideology reigns supreme, shouldn't be feared. "It means only taking intellectual life out of its parallel universe and reuniting it with science and, when it is borne out by science, with common sense."

* * *

This issue is filled with timely special reports, commentaries, and reviews. Space engineer James Oberg tells the story of his effort—temporarily sidetracked when NASA got embarrassed by the tone of news reports—to counter the wackos who contend the moon landings never happened. Science author Timothy Ferris examines "Taken," Steven Spielberg's widely viewed Sci Fi Channel miniseries about alien abductions. Physicist David E. Thomas finds that the same channel's "documentary" hyping an archaeological dig at the supposed Roswell saucer crash site was a classic "bait and switch." CSICOP investigator Joe Nickell discovers reasons to doubt the claims made about the recently reported James Ossuary. Nickell then examines Patricia Cornwell's claims that she has solved the case of Jack the Ripper. Dave Thomas critiques *The Bible Code II.* He uses the same "code" to find this message in the book: "The Bible Code is a silly, dumb, fake, false...dismal fraud and snake-oil hoax." Robert Sheaffer finds levity in the rising numbers of antigravity claims.

There seems no end to the new emergence of both serious claims that deserve careful examination and silly claims that nevertheless easily gain credulous adherents. Applying science and reason to them and then informing the public about what science really knows has never been more needed.

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AAAS Board Urges Opposing 'Intelligent Design' Theory in Science Classes

KENDRICK FRAZIER

In a welcome move that should provide aid to scientists and educators battling the latest inroads of creationism into the schools, the Board of Directors of the American Association for the Advancement of Science has issued a statement urging policymakers to oppose teaching "Intelligent Design Theory" within science classrooms. It asks them to keep it separate, in the same way that creationism and other religious teachings are currently handled.

The resolution (see full text adjacent) was passed by the AAAS Board on October 18, 2002, and issued on November 6. With 134,000 members, the AAAS is the world's largest general scientific society.

"The United States has promised that no child will be left behind in the classroom," said Alan I. Leshner, CEO and executive publisher for the AAAS. "If intelligent design theory is presented within science courses as factually based, it is likely to confuse American schoolchildren and to undermine the integrity of U.S. science education."

American society supports and encourages a broad range of viewpoints, Leshner noted. While this diversity enriches the educational experience for students, he added, science-based information and conceptual belief systems should not be presented together.

Biologist Peter H. Raven, chairman of the AAAS Board of Directors, agreed: "The ID movement argues that random mutation in nature and natural selection can't explain the diversity of life forms or their complexity and that these things may be explained only by an extra-natural intelligent agent," said Raven, Director of the Missouri Botanical Garden. "This is an interesting philosophical or theological concept, and some people have strong feelings about it. Unfortunately, it's being put forth as a scientifically based alternative to the theory of biological evolution.

AAAS Board Resolution on Intelligent Design Theory

The contemporary theory of biological evolution is one of the most robust products of scientific inquiry. It is the foundation for research in many areas of biology as well as an essential element of science education. To become informed and responsible citizens in our contemporary technological world, students need to study the theories and empirical evidence central to current scientific understanding.

Over the past several years proponents of so-called "intelligent design theory," also known as ID, have challenged the accepted scientific theory of biological evolution. As part of this effort they have sought to introduce the teaching of "intelligent design theory" into the science curricula of the public schools. The movement presents "intelligent design theory" to the public as a theoretical innovation, supported by scientific evidence, that offers a more adequate explanation for the origin of the diversity of living organisms than the current scientifically accepted theory of evolution. In response to this effort, individual scientists and philosophers of science have provided substantive critiques of "intelligent design," demonstrating significant conceptual flaws in its formulation, a lack of credible scientific evidence, and misrepresentations of scientific facts.

Recognizing that the "intelligent design theory" represents a challenge to the quality of science education, the Board of Directors of the AAAS unanimously adopts the following resolution:

Whereas, ID proponents claim that contemporary evolutionary theory is incapable of explaining the origin of the diversity of living organisms;

Whereas, to date, the ID movement has failed to offer credible scientific evidence to support their claim that ID undermines the current scientifically accepted theory of evolution;

Whereas, the ID movement has not proposed a scientific means of testing its claims;

Therefore Be It Resolved, that the lack of scientific warrant for so-called "intelligent design theory" makes it improper to include as a part of science education;

Therefore Be Further It Resolved, that AAAS urges citizens across the nation to oppose the establishment of policies that would permit the teaching of "intelligent design theory" as a part of the science curricula of the public schools;

Therefore Be It Further Resolved, that AAAS calls upon its members to assist those engaged in overseeing science education policy to understand the nature of science, the content of contemporary evolutionary theory and the inappropriateness of "intelligent design theory" as subject matter for science education;

Therefore Be Further It Resolved, that AAAS encourages its affiliated societies to endorse this resolution and to communicate their support to appropriate parties at the federal, state and local levels of the government.

Approved by the AAAS Board of Directors on October 18, 2002

Intelligent design theory has so far not been supported by peer-reviewed, published evidence."

In contrast, the AAAS said, the theory of biological evolution is well-supported, and not a "disputed view" within the scientific community, as some ID proponents have suggested.

"The contemporary theory of biological evolution is one of the most robust products of scientific inquiry," the AAAS Board wrote in the resolution. "AAAS urges citizens across the nation to oppose the establishment of policies that would permit the teaching of 'intelligent design theory' as a part of the science curriculum of the public schools."

The AAAS Board resolved to oppose claims that intelligent design theory is scientifically based, in response to a number of recent ID-related threats to public science education.

In Georgia, for example, the Cobb County District School Board decided in March 2002 to affix stickers to science textbooks, telling students that "evolution is a theory, not a fact, regarding the origin of living things." Following a lawsuit filed August 21 by the American Civil Liberties Union of Georgia, the school board on September 26 modified its policy statement, but again described evolution as a "disputed view" that must be "balanced" in the classroom, taking into account other family teachings. The exact impact of the amended school board policy in Cobb County classrooms remains unclear.

A similar challenge is underway in Ohio, where the state's education board on October 14 passed a unanimous, though preliminary, vote to keep ID theory out of the state's science classrooms. But their ruling left the door open for local school districts to present ID theory together with science, and suggested that scientists should "continue to investigate and critically analyze aspects of evolutionary theory."

The Ohio State Education Board invited further public comment through November. In December, the Ohio State Education Board unanimously voted to approve new state science standards that, for the first time in the state's history, include evolution. Intelligent Design creationism will not be part of the standards. Meanwhile, ID theorists have reportedly been active in Missouri, Kansas, New Mexico, New Jersey, and other states, as well Ohio and Georgia.

While asking policymakers to oppose the teaching of ID theory within science classes, the AAAS also called on its 272 affiliated societies, its members, and the public to promote fact-based, standards-based science education for American schoolchildren.

Kendrick Frazier is Editor of the SKEPTICAL INQUIRER.

Death, Taxes, and Failed Psychic Predictions: Tabloid Psychics Fail Again In 2002

The Super Bowl will be cancelled after the first half of play. People will be able to go back in time, although there won't be any way to bring them back home. Psychic forecasts for 2003? Nope.

Those are events that were supposed to come true in 2002, according to the supermarket tabloids whose editors say they gathered the forecasts from some of the world's best psychics.

Actually, psychics and astrologers seem to have fallen on tough times recently. The September 11 terrorist attacks graphically illustrated that people who claim to have psychic powers are frauds or are deluding themselves. Witness the fact that nobody predicted the destruction of the World Trade Center towers, otherwise thousands of deaths would have been averted.

As a result, most of the tabloids that still publish forecasts have now resorted to using "psychics" who may not even exist. They don't show up on Internet search engines. That turns out to be true for the *Sun* and *Weekly World News*. The best known tabloid, the *National Enquirer*, gave up its tradition of publishing beginning-of-the-year psychic predictions a few years ago.

One exception was the January 8, 2002, edition of the *Star*, where Kenny Kingston, a real person, made not-surprising, often-vague, or frequently unconfirmable forecasts on twenty celebrities. (For example, he predicted that "a secret trial separation is ahead for Barbra [Streisand] and hubby James Brolin." If it's secret, how are we supposed to confirm it?) He said Nicolas Cage and Lisa Marie Presley would marry, and that *Who Wants to Be a Millionaire* would be cancelled. But his Martha Stewart prediction made no mention of her stock market scandal, and he said Hillary Clinton will be "much in the headlines with a scandal that will rival anything involving her husband Bill."

The latest batch of predictions did not forecast the Florida election fiasco, Jimmy Carter winning the Nobel Peace Prize, or the Maryland sniper case. Instead, the tabloid psychics were saying that in 2002:

- Satan would be discovered working in a homeless shelter, reading to the blind and delivering Meals on Wheels.
- The Super Bowl would be cancelled after the first half because team owners would refuse to cough up an extra $10,000 for each player.
- A time tunnel would be created to allow people to make a one-way trip back into time. (A way to make the return trip is supposed to be discovered in 2006.)

The accuracy of the other tabloid forecasts made at the beginning of 2002 can't be judged because the psychics never said when the predictions will come to pass.

For example, the "world's top psychics and seers" said in the *Sun* that Prince Charles will marry Camilla Parker-Bowles in a royal shotgun wedding, the U.S. capital will move to Wichita, a gorilla fluent in sign language will lead a new religion, Elvis will be found buried next to Princess Di, animal performances will be banned, and Dick Clark will become a much-lauded ballet dancer.

But they don't say when.

That means Clark, Prince Charles, and Parker-Bowles will have to die before it becomes certain that these "psychics" were incorrect.

Annual tracking of the tabloids and their sometimes-silly predictions gives consumers a reality check and shows them that psychics, when put to the test, can't live up to their claims.

—Gene Emery

Gene Emery is a science writer and longtime SKEPTICAL INQUIRER *contributor.*

Bigfoot Hoaxer Dies; Legacy Lives On

Dale Lee Wallace with the original alder wood feet his uncle Ray Wallace strapped on to help make Bigfoot tracks in 1958.

One of the leading figures of the North American Bigfoot legend died on November 26, 2002, at the age of 84. Ray Wallace was the subcontractor on a road-building operation in Humboldt County, California, in the summer of 1958 when giant footprints began appearing overnight on the freshly cleared road. Tracks would appear intermittently in the area, attracting amazed onlookers and reporters eager for a good mystery to write about. Upon his death, his family confirmed what had been suspected for decades—Ray Wallace spawned Bigfoot with a practical joke that got out of hand.

Wallace's nephew displayed the oversized wooden feet that Ray and his brother Wilbur had used to mystify and tantalize the road crew, Bigfoot hunters, and the public. It wasn't until 1959 that Bigfoot captured American popular interest, when *True* magazine published an article describing the discovery of large, mysterious footprints in Bluff Creek a year earlier. Not only were Wallace's hoaxed footprints among the first documented Bigfoot tracks, but Wallace also had a link to what many Bigfoot researchers consider the best evidence for the unknown creature: the 1967 film showing a large, hairy creature crossing the Bluff Creek drainage. Filmer Roger Patterson was in the process of making a documentary about Bigfoot, and set out that day specifically to film the creature. Wallace apparently told Patterson exactly where to look to obtain the coveted footage. Though Wallace never claimed credit for the hoax, he did say he knew it was faked—and who was in the suit.

The image of Wallace's nephew holding his uncle's monster props is also particularly telling, since the details of the different sets of bogus feet match up well with footprints found in the region well after the 1958 tracks appeared. Most significant is the presence of a second furrow behind the big toe in one of the phony sets—a feature that Bigfoot proponents have hailed as the "double-ball" trait and is thought to be one hallmark of legitimate Sasquatch prints.

The Wallace family revelations came as vindication for *Strange* magazine editor Mark Chorvinsky, who, in a series of columns over the years, has argued that Wallace has been systematically ignored by Bigfoot enthusiasts as a major contributor to Bigfoot lore and legend. The reason for the whitewashing of Wallace's role in the search for Bigfoot is not hard to discern: Wallace is credited with a number of unconvincing Bigfoot photographs and films as well as detailed stories of his personal encounters with Bigfoot (including one creature's voracious appetite for frosted flakes). While Wallace never confessed to any Bigfoot hoaxes during his lifetime, his narratives surrounding Bigfoot indicate that he regarded the Bigfoot legend as a source of innocent amusement instead of legitimate scientific inquiry. Bigfoot proponents apparently did not appreciate Wallace's sense of humor. Chorvinsky notes that in Bigfoot books, Ray Wallace's contributions to Bigfoot's storied history are marginalized or completely ignored.

Still, staunch supporters of Bigfoot's reality are unmoved. According to the Associated Press, Bigfoot's most enthusiastic champion in the academic community, Jeff Meldrum of Idaho State University, maintains that without Wallace's inventory there remain over forty "genuine" footprints attributable to an unknown primate. Bobbie Short, who runs the comprehensive Bigfoot Encounters Web site, also doesn't buy Wallace's involvement in the Patterson

film. Some of the casts from footprints left from that encounter, she says, contain dermal ridges (toeprints) that can't be carved onto wooden feet.

Media reports of Wallace's passing, including a long piece in the *Seattle Times*, announced that Bigfoot is now dead as well. Other articles and Wallace obituaries were soon flitted around, some implying that all Bigfoot sightings were hoaxed. This, of course, sent some Bigfoot researchers spinning to do damage control. One lamented the "media mixing of the lies and rumors with a few facts" in the Wallace story and responded that Wallace was a known prankster who never fooled anyone.

It is true that some press reports of Bigfoot's death were greatly exaggerated; no one, not even Ray Wallace, is singlehandedly responsible for the Bigfoot phenomenon. But Wallace, who undeniably played a major role in creating and promoting Bigfoot for decades, was finally confirmed to be a playful hoaxer. Revelations of Wallace's rampant hoaxing have tainted what was once considered credible data in a field that is already desperately short of hard evidence.

—David Daegling and Benjamin Radford

David Daegling and Benjamin Radford both wrote articles on Bigfoot for the March/April 2002 SKEPTICAL INQUIRER.

'Miss Cleo' Settles with the Federal Trade Commission

A November 2002 Associated Press article announced the settlement between the Florida-based Access Resource Services, Inc. (ARS) and the Federal Trade Commission (FTC). Reacting to mounting claims of fraudulent phone charges from ARS customers, the FTC filed charges against ARS and its sister company, Psychic Readers Network, Inc. (PRN), in February 2002.

Under the settlement, ARS and PRN have agreed to erase $500 million in customer debts, stop using pay-per-call phone numbers to sell their "services," and pay a $5 million fine to the FTC.

Adding to ARS's federal settlement, the corporation has settled suits in several states. Among others, the settlements include the following:

- In Florida, ARS agreed to forgive $44.3 million in bills to Florida residents, pay $40,000 to the state to reimburse the costs of investigation, and to cease running pay-per-call services or signing up new customers for prepaid services;
- In Connecticut, ARS has agreed to forgive $1.9 million in billings to customers in that state; and
- In Missouri, Steven Feder and Peter Stoltz, ARS's owners, were sentenced by a state court to probation and fines.

Even fellow tarot practitioners turned on ARS when details about its operations began to be exposed by attorneys general and the media. In October, 2001, Nancy Garen, the author of the book *Tarot Made Easy*, filed a lawsuit in California against Feder and others at ARS claiming that the so-called psychic readers had plagiarized sample readings in her book word-for-word, and even posted excerpts on their Web sites. The lawsuit seeks damages in excess of $250 million. A motion by the defendants to dismiss the suit was denied by a U.S. District Court in February 2002.

While Feder and Stoltz have been pummeled by criminal charges as prosecutors try the stamp out the ARS tarot phone scheme, Youree Dell Harris, the woman identified as Jamaican tarot reader Miss Cleo in TV ads and Web sites, has managed to dodge prosecution. The Florida attorney general's office dismissed charges against Harris in December 2002. She had been accused of deceptive trade practices in ads promoting the psychic hot line.

For Harris, most of the scandal has focused on the fact that she is not really the Jamaican mystic she claimed to be. Early in 2002, it was revealed that she was born an American citizen. In June 2002, she invoked her Fifth Amendment right against self-incrimination during a deposition when asked to discuss a birth certificate showing that she was born on August 13, 1962, in Los Angeles to American parents.

Despite the legal troubles of ARS, it remains to be seen whether the corporation will survive the judgements and restrictions of the various settlements, or finally succumb and pass into the chronicles of scams perpetrated on the gullible. A November AP story quoted FTC director Howard Beales, who claimed, "They're getting out of the business. It won't resume." An excellent online source for history and current news regarding the various lawsuits against ARS and its owners, in addition to relevant original documents, can be found at www.courttv.com/news/feature/cleo/.

—Kevin Christopher

Kevin Christopher is Public Relations Director for CSICOP.

South Park TV Satire Skewers John Edward Psychic Pretensions

Now that the Osbourne clan has knocked the cable TV cartoon *South Park* from its place of preeminence in the pantheon of shock and vulgar humor, what's left for the show's creators Matt Stone and Trey Parker to do to deliver a jolt to a jaded national audience? In one of the best episodes in the series, the jolt administered to viewers of the November 27, 2002, broadcast was an unexpected blend of skepticism and debunking in a satire worthy of Twain at his most cutting, with psychic huckster John Edward the focus of Stone and Parker's venom.

South Park has blazed a trail across the cable spectrum since 1997 as a centerpiece of programming on the Comedy Central network. It uses its premise of the lives of four ordinary nine-year-old boys

in a hick Colorado mountain town as a starting point for attacks on politics and popular culture. For a program with a reputation for gloves-off parody, the blistering attack on Edward was unusually personal, which somehow made the show all the more satisfying. In the show Edward is portrayed as a thin-skinned, self-serving faker, or, as one of the show's principals Stan so pithily repeats throughout the program, "a liar," "a fake," and "a douche."

Edward became a character on the show as part of a story arc that has dominated this season of *South Park*. In a previous season one of the show's principals, Kenny, was finally killed off for good, but the memory and spirit of Kenny has hung on to provide more opportunities to depict an increasingly sour view of human nature.

In an earlier episode, Kenny's spirit had taken up residence in Cartman, the most scabrous of the children. In this episode, the presence of two souls in one body is causing Cartman to fall gravely ill, and the show's lone (somewhat) sensible adult, Chef (voiced by musician and actor Isaac Hayes), recognizes that the condition cannot be cured by medicine, but that Kenny's spirit must be liberated from Cartman's body. He takes Cartman and his mother and two other boys, Stan and Kyle, to a taping of *The Other Side with John Edward* in order to try to communicate with Kenny's spirit. Edward appears and does his usual cold reading and guessing games before a hopelessly credulous audience. Chef and Stan see through Edward's act immediately, but Kyle is beguiled by his bogus ability to speak to Kyle's dead grandmother. Chef admits, "I can't believe I was fooled by that asshole . . . they must edit the show down to only show him getting mostly right answers." Chef, Cartman, and his mother go off to seek out another cure, while Stan stays in New York to convince Kyle of Edward's deception.

Stan journeys to Edward's home, a mansion with monogrammed doors, a butler, and walls covered in portraits of Edward himself. Edward receives Stan after the butler has played a recording of an introduction of him complete with canned applause. Stan asks Edward to admit to Kyle that his act is just all a trick so that Kyle can return to his home and resume going to school with his friends.

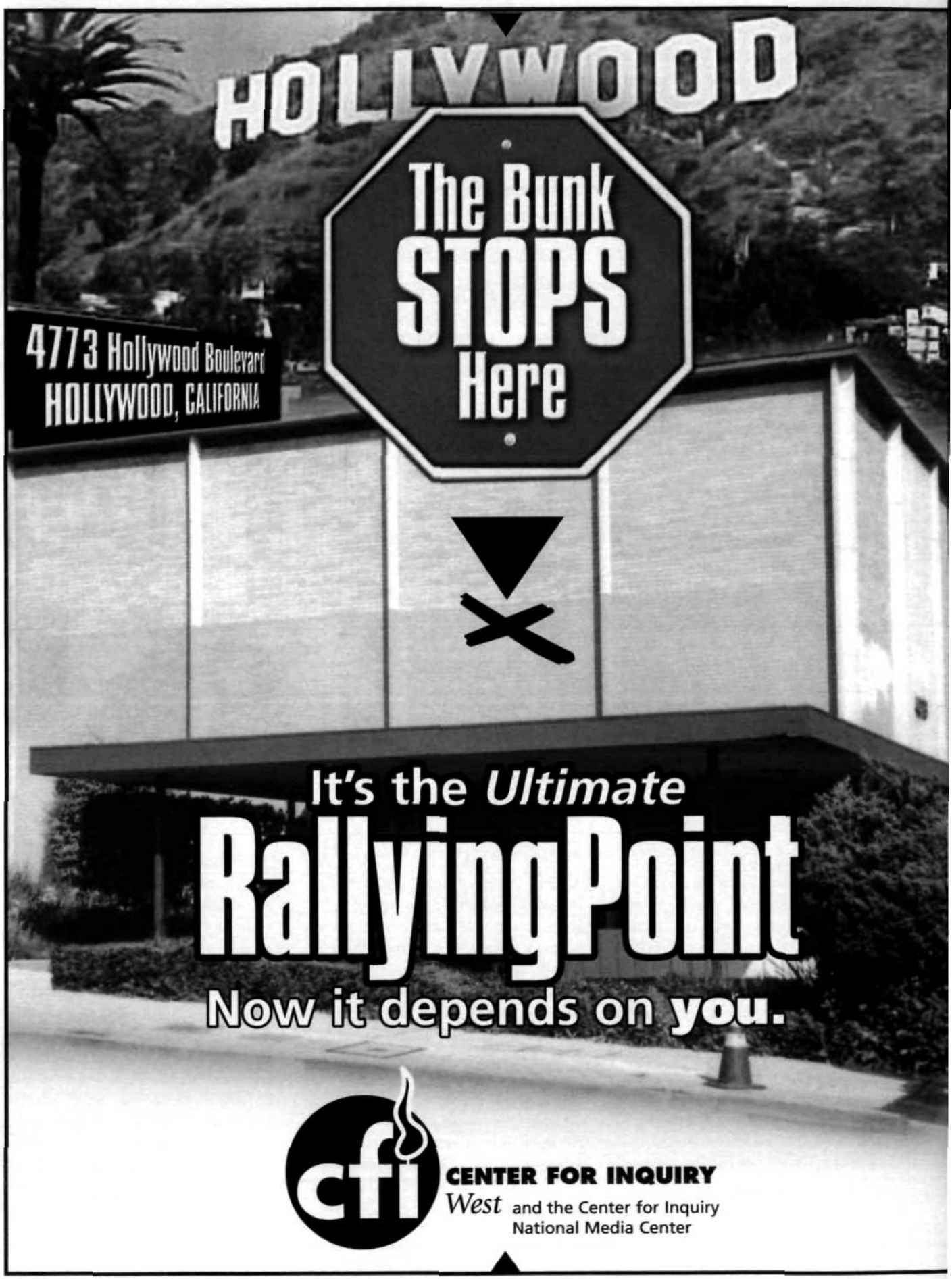
Episode 615: The Biggest Douche in the Universe. When a famous psychic fails to help him exorcise Kenny from his body, Cartman takes other steps to achieve his goal. He and Chef travel to the moors of Scotland, where Chef's mom tries a little of her voodoo magic on him. Meanwhile, after the boy's encounter with the TV psychic, Kyle is paralyzed with fear at the thought of members of the spirit world watching over him. Only by debunking those who claim they can communicate with the dead can Stan save Kyle. Copyright © 1997–2000 Comedy Partners.

Edward insists that it is not a trick, and the argument between the two escalates until Edward flees to his panic room with Stan promising to nominate him for the "Biggest Douche in the Universe Award." While leaving, Stan notices Edward's bookshelf and takes a few books down. He sifts through several with titles like, "How To Be A Psychic," "Cold Reading: The Secret of the Psychics," and "How to Convince Women That You Are Psychic! (And Then Have Sex With Them)."

Kyle continues to resist accepting the facts and Stan angrily gives an impromptu demonstration of cold reading on the streets of New York. Passersby, just as credulous as those in Edward's studio audience, are astounded by Stan's "gift," despite Stan explaining how he is just doing a trick. A television producer is in the crowd and he proclaims Stan the next star TV psychic. We cut to Stan being introduced during the taping of his first show. He opens with an explanation that what will follow is a trick. Even though he explains what he is doing step-by-step, his cold reading of the crowd gains him the same swooning response as he got while performing in the street.

After the taping, an incensed Stan confronts Kyle with testimonials and articles he has downloaded from the Internet describing Edward planting listening devices in his audience and using actors as plants to improve his "hits." Edward appears and challenges Stan to a face-off on TV to demonstrate that he is the better psychic. Stan agrees to the challenge as an opportunity to expose Edward. Their confrontation is disrupted by the arrival of a spaceship filled with various aliens. They explain that they have come to take Edward to appear at the ceremonies for the "Biggest Douche in the Universe Award." Edward is whisked away and deposited in an audience with his fellow nominees. Surrounded by blobs, reptilians, grays, and tentacled aliens, Edward glumly sits through the introductions of each nominee. Despite his shrieked denials, Edward wins and the show closes with an enormous-eared, green skinned, Dean Martin-like alien serenading him: "Here he is, the biggest douche in the universe. . . ."

Once you strip away the dirty jokes and name calling, what remains of this episode is a clear, concise explanation of cold reading and how people like Edward exploit the grief of others for their personal gain. However, the show is particularly brave and acute when it depicts people as happy collaborators in the deception. Like the best satire, there is a genuine moral center in the midst of all the sick jokes. Sadly, the righteousness of the anger probably will do little to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counter Edward's popularity. At least Parker and Stone have given skeptics twenty-two minutes of very funny ridicule of a richly deserving target.

—Greg Martinez

Greg Martinez is a database manager in Gainesville, Florida.

Clone Claims Result in Publicity But No Proof

The media ended 2002 and ushered in 2003 with claims that the first successfully cloned baby had (possibly) been born. Unfortunately, the media got things backwards: It should have been science first, publicity second. Without a shred of corroborative evidence, the French UFO cult visionary Raël (formerly known as Claude Vorilhon) and the cloning company he founded in 1997, Clonaid, were catapulted into the world spotlight by the suspect announcement that a bouncing baby clone had been born on December 26, 2002, at an undisclosed location, to American parents.

Now that it has become clear that the first alleged human clone will not be verified through DNA testing after all, several media watchers are sifting through the smoking wreckage of this crashed media cycle. CNN's *Reliable Sources* host Howard Kurtz and *Los Angeles Times* columnist Tim Rutten, among others, criticized the excessive coverage and faulted Michael Guillen, the former ABC News Science Editor who had been organizing the independent testing of Clonaid's results. Guillen has now publicly distanced himself from the fiasco.

While the publicity storm over Raël, Clonaid, and just how the media were so easily duped might soon mercifully blow over, the fallout in the United States may be lingering and catastrophic to legitimate cloning research. A January 9, 2003, Fox News Channel online story by Liza Porteus announced the introduction of a new Human Cloning Prohibition Act bill in the U.S. House of Representatives the previous day. "The bill got a jump start this session," writes Porteus, "after Clonaid . . . claimed it had delivered a human clone baby and had three more on the way." The bill would ban both reproductive and therapeutic cloning. This has many scientific groups worried, since therapeutic cloning is a promising technique for replicating specific types of cells rather than an actual embryo. A ban, say researchers, would undermine efforts to find cures for Alzheimer's and diabetes.

—Kevin Christopher

Dean, Krauss, Stenger, Wilson Elected CSICOP Fellows

Four scientists have been elected Fellows of the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP), publisher of the SKEPTICAL INQUIRER. CSICOP Fellows are distinguished scholars, scientists, or investigators who have made significant contributions to science and skepticism. Fellows are nominated and elected by the CSICOP Executive Council.

The new Fellows are:

• **Geoffrey Dean**, technical editor, Perth, Western Australia. Noted critic of astrology. Author of numerous detailed critiques including many published in SI, such as "Is the Mars Effect a Social Effect?" (May/June 2002), "Sun Sign Columns" (September/October 2000), "Astrology Strikes Back—But to What Effect? (Fall 1993), and the two-part series "Does Astrology Need to Be True?" (Winter 1986–87 and Spring 1987).

• **Lawrence M. Krauss**, Ambrose Swasey Professor of Physics and Astronomy and Chairman of the Physics Department, Case Western Reserve University. Author of *Beyond Star Trek, The Physics of Star Trek, Fear of Physics: A Guide for the Perplexed, The Fifth Essence: The Search for Dark Matter in the Universe, Cosmic Microwave Background Anisotropies*, and (co-editor) of *Big Bang Nucleosynthesis*. His scientific paper "Age Estimates of Globular Clusters in the Milky Way: Constraints on Cosmology" leads off a special section on globular clusters in the January 3, 2003, *Science*.

• **Victor A. Stenger**, Emeritus Professor of Physics and Astronomy, University of Hawaii, and Visiting Fellow in Philosophy, University of Colorado. Pioneer in very high energy gamma ray astronomy and neutrino astronomy. Author of *Has Science Found God?, Timeless Reality, The Unconscious Quantum, Physics and Psychics*, and *Not by Design*. Editor of *High Energy Neutrino Astrophysics*.

• **Edward O. Wilson**, University Research Professor, emeritus, and Honorary Curator in Entomology, Harvard University. Author of such noteworthy books as *Consilience, Naturalist, The Biophylia Hypothesis, The Ants* (Pulitzer Prize winner), *On Human Nature* (Pulitzer Prize), *Sociobiology*, and *The Insect Societies*. Recipient of the National Medal of Science.

In addition, two other scientists have been elected CSICOP Scientific or Technical Consultants:

• **Massimo Pigliucci**, professor of evolutionary biology, Departments of Botany and Ecology and Evolutionary Biology, University of Tennessee, Knoxville. Author of *Denying Evolution: Creationism, Scientism, and the Nature of Science* and *Tales of the Rational*. Also author of numerous articles on science, evolution, and rationalism, including several in SI, most recently "Hypothesis Testing and the Nature of Skeptical Investigations" (November-/December 2002). He created and writes the new "Thinking About Science" column for SI.

• **David G. Willey**, physics instructor, University of Pittsburgh at Johnstown and member of the board of the Pennsylvania Science Teachers Association. Has a traveling physics road show and has made frequent appearances as the "resident mad scientist" on *The Tonight Show with Jay Leno*. □

'Taken' Off

TIMOTHY FERRIS

I *once met a young man who described* himself as a "freelance investigative journalist," and who, after a few minutes' conversation, said he firmly believed that a crashed flying saucer with alien bodies aboard had been seized by the U.S. Air Force in 1947, near Roswell, New Mexico, and was now being held in a hanger at Wright-Patterson Air Force Base in Ohio.

"Why aren't you there?" I asked him.

"Where?"

"At Wright-Patterson, working the story."

"It's *top secret*," he replied. "No way they'd let a reporter anywhere near it."

While this brief exchange shed little light on UFOs, it sufficed to establish that the young man was no journalist. A real journalist who shared his outlook would have been on that story like a coat of paint—living for months on end in cheap lodgings near the air base, shooting pool with flyboys in the local fun zones, crashing parties at the officers' club, ceaselessly digging until something turned up.

Something *will* turn up, if there's a story there and you work it properly. Secrets are not that easily kept. People like to talk, especially about themselves; you'd be surprised at how much even hardened cops and federal agents will spill in the course of a few solid interviews. As the Pulitzer prize-winning journalist and CIA expert Thomas Powers has pointed out, those charged with keeping secrets sooner or later lose track of just which parts of them are meant to be *kept* secret. Inadvertently, they let things slip, and you can leverage those tidbits to give subsequent interviewees the impression that you know more than you really do, which inclines them to mention other things, until eventually the picture comes together. The process is time-consuming, but worth it if the story is big enough—and not many stories are bigger than a UFO crash.

So why haven't journalists swarmed all over Wright-Patterson Air Force Base? It's not because we find it inconceivable that an alien spacecraft might have pancaked in the desert, or fear that jack-booted troopers will kick down the motel room door if we get too close to the truth, or are worried that disclosing it will cause a public panic. We have our faults and foibles and our bad apples, like any profession, but we're not an unalloyed gaggle of dimwits and cowards, and we certainly don't much care about causing a panic: We're in the panic-promoting business. Rather, it's because every capable journalist has a bullshit detector, and we think—in our admittedly bemused and imperfect way—that this story is bullshit.

Indeed, from our standpoint, UFO news has been on life support for decades. It used to be that flying-saucer stories normally proffered a mix of eyewitness accounts and physical evidence. The eyewitness accounts may have been conflicting and suspiciously blinkered (as when a few people would report seeing a UFO in a piece of sky visible to thousands of others who saw nothing) and the physical evidence paltry (a scorched spot on a roadway here, a fuzzy photo there), but at least there was some semblance of empirical data. But then UFO tales tilted into

Timothy Ferris is emeritus professor of journalism at the University of California, Berkeley. His latest work, Seeing in the Dark, *was named by* The New York Times *as one of the seven best books published in 2002.*

the realm of alien abductions. Abductees were expected to produce neither coherent eyewitness accounts nor any physical evidence whatever. All they had to do was claim to *feel* that something had happened to them—something rather like having a bad dream—that might have involved aliens in spaceships. Abduction interpreters took it from there, like oracles reading tea leaves. John Mack, the Harvard psychologist who went belly-up for abduction yarns years ago, argues that what he calls "the alien encounter phenomenon" may be inherently exempt from the customary rules of evidence, if it "derives from a source which by its very nature could not provide the kind of hard evidence that would satisfy skeptics for whom reality is limited to the material."

That's us journalists, all right: We're "limited to the material." We prefer facts to dreams, feelings, and expressions of faith, and we don't even trust putative facts until we've checked them out. (Journalism students are advised, in the words of a onetime Chicago city-room editor, "If your mother says she loves you, check it out!") Alien abductions don't even begin to check out, as Johnny Mack implicitly concedes. So the more abduction-oriented the UFO yarns got, the less we journalists would have anything to do with them.

But from a science-fiction standpoint, alien abductions put solid-rocket boosters on the UFO story. The flying-saucer spotter of old was a passive observer, who had suffered, at most, a few moments of puzzlement or fear. His report, and its evaluation by skeptics and believers, belonged to the empirical realm of evidence and logical inference—that is, of thinking. But once he claimed to have been abused by aliens—to have been plucked from his farm, taken aloft, and rudely probed, and his poor wife probed, too—the emotional quality of his role improved immensely. Rather than merely being inconvenienced, like an owl stirred to flight by the click of a birdwatcher's camera, he became a terrified victim. His tale, no longer confined within the narrow riverbanks of factual thinking, now sailed on wide oceans of feelings—and feelings sell a lot more tickets than thoughts do. Abductee reports may be wildly implausible and woefully lacking in verification, but science fiction is a "what-if" medium: What if they're telling the truth?

That speculation is the mainspring driving the longest TV mini-series ever made, Steven Spielberg's twenty-hour *Taken*. Billed as a "history" of alien abductions, *Taken* was a hit, a "water-cooler event" that put the Sci Fi Channel on the map as the most watched basic cable outlet in the nation for ten delirious December nights. It reached well over ten million viewers in the U.S., will be seen by many more around the world, and doubtless will persuade plenty of viewers, especially younger ones, that the alien abduction phenomenon is real—that, as Sean Macaulay wryly put it in the London *Times*, "It is true, it is part of America's history, and it has been covered up for too long."

What fills all that time is, essentially, a demonstration of the logical dictum that all sorts of conclusions may be derived from a false premise. (The syllogism, "If Chicago is south of Miami, I am the king of Bavaria" is logically true.) If you start by asserting, say, that giant squid are the smartest creatures on Earth, then you immediately have a lot of questions to answer—like, "How come giant squid aren't running the planet and hijacking cruise ships?" or, "Do they have condos and cool discos down on the bottom of the sea?" To a journalist this all sounds silly, but for a fiction filmmaker—especially one who's trying to have it both ways—the plethora of questions is a plus.

Spielberg, the executive producer and guiding light of *Taken* although he directed none of it, is a fiction filmmaker to the marrow. His artistic vision is as brilliant, if not much deeper, than the layer where light bounces off the silver screen, and he is ill-disposed to let facts get in the way of what works dramatically. As he told *The New York Times*, "I've always been fascinated with all of the questions that these [UFO abduction] stories raise. What do they want with us? What can they discover by taking us that they couldn't discover simply by taking a small scraping of skin or a follicle of hair? Why physically abduct us? And why do it the way they do it, so secretly? Why not just come to us with a Petri dish and say, 'Could we have a little DNA, please?' We wanted to come up with a story that tries to provide an answer to some of those questions."

As you might expect, the answers proffered by *Taken* don't add up to much, but that doesn't prevent its being a pretty good show. Budgeted at $40 million, *Taken* looks and plays as if it had cost even more, thanks to Spielberg's undeniable story-telling genius, his weird but genuine devotion to flying-saucer lore, and the impressive team he assembled to make it. The special effects, by Jim Lima (*Space Jam*, *Spider-Man*), are gorgeous. Although Lima's aliens disappointingly resemble the big-eyed, skinny-bodied humanoids familiar from a hundred pulp-novel covers, they have a chilling amorality and an air of cold intelligence that rings true—they're lab technicians as seen by lab rats—and the flying saucers they tool around in are spectacular, even if they are sometimes upstaged by the finned fifties Buicks that adorn the show's period pieces. The directors (a different one was used for each of the series' ten two-hour segments) include innovators like Tobe Hooper (*Texas Chainsaw Massacre*, *Poltergeist*) and Breck Eisner (*Dead Of Night*). The solid ensemble cast, which includes Heather Donahue (*The Blair Witch Project*), Joel Gretsch (*Minority Report*), Julie Benz (*Buffy the Vampire Slayer*), and the remarkable child actress Dakota Fanning (*I Am Sam*), manages to breathe life into a stolid but heartfelt script by Leslie Bohem (*Dante's Peak*), who wrote the whole thing after reportedly being converted from flying-saucer skeptic to true believer by Spielberg.

Taken is freighted with portentous pseudo-profundities ("Life is like a roller coaster ride") and dramatic infelicities. A sequence in which a crazed abductee

holds the other members of his abductee support group hostage at gunpoint is so unintentionally funny as to recall the young Harrison Ford's complaining to George Lucas, on the set of the first *Star Wars* movie, "George, you can write this shit, but you can't *say* it." Yet it also has moments of startling originality, and it sustains a dramatic coherence remarkable in so long a work. Told in a pseudo-documentary framework, with superimposed dates and place names bestowing on each sequence a persuasive if unearned aura of authenticity, it appeals to an even wider audience than the 100 million or so Americans who say they believe that spaceships have visited Earth, and two percent (more than the entire population of Manhattan!) who claim to have been abducted themselves.

The problem, of course, is that all this talent is wasted on telling a story that swallows every absurdity of the alien abduction myth—with the sole exception of crop circles, which are dismissed as fraudulent in a sly bid to make it all seem plausible by showing that the filmmakers aren't thoroughly gullible. Spielberg obviously loves the story, and his affection sells it on an emotional level. "If it's just another urban myth," he said recently, "then it's certainly one that has sustained itself for decades, and with remarkable similarities from one case to the next. They have been around since long before I made *Close Encounters of the Third Kind* in 1977, and they've persisted way after." It doesn't seem to bother him that a similar argument could have been employed, at other times, to justify the burning of witches, throwing Christians to the lions, or expelling Jews from Spain. Nor should it, necessarily: Spielberg is in the entertainment business, which generates profits by showing people what they want to see, not what they need to know.

Yet Spielberg's wide-eyed, "what if?" approach, devoted at such length to so bogus a subject, ultimately drains *Taken* of the value that great storytelling, as opposed to virtuoso moviemaking, can evince. In the end the show is, literally, childish.

It's a cliché that Spielberg's tales are character-driven, and this is certainly true of *Taken*, which traces fifty years in the alien-fretted lives of three families—the Keys, the Clarkes, and the Crawfords. The Keys are abducted, probed, and tossed back to Earth repeatedly, like human recycling bins. The Clarkes become half-breeds after Sally Clark, a tough coffee-shop waitress (played with admirable three-dimensionality by Catherine Dent) has a fling with an alien cleverly disguised as a human hunk (Eric Close, who played a federal agent whose wife was abducted—small world—in the NBC series *Dark Skies*). The Crawfords, a military clan, busy themselves trying to kidnap the Clarkes and killing anybody who gets in the way. Their scion, the maniacally evil Capt. Owen Crawford (Joel Gretsch), viciously murders his girlfriend, his wife, and even a couple of Boy Scouts, but in the Spielbergian universe his ultimate crime is that he neglects his children.

In a sense, children are the only characters who really matter in *Taken*. The series is narrated by a ten-year-old (played by an estimably composed Dakota Fanning, who manages to breeze through lines like, "People are lonely in this world for lots of different reasons"), and it makes room for a few adolescents, among them a Berkeley journalism student who fearlessly tracks down an alien tomb and gets his brain and body fried for his trouble. But its grownups are cardboard cutouts. They're adults as seen by children—exemplifications of good or evil, lacking in emotional subtlety except where children are directly involved, whose grown-up lives, especially when sex rears its head, dissolve into a confusing jumble.

This is not to say that the series is meant to be seen *by* children: Like most sentimentalized treatments of childhood, it's too scary and routinely cruel for that. (Try showing your kid the upsetting although spectacularly beautiful episode in which a little boy is lured from his bed by an alien disguised as a favorite cartoon figure, only to be abducted and—you guessed it—ruthlessly probed.) But it *is* told from a relentlessly infantile point of view—which makes sense, since that's the one perspective from which its many absurdities can be sustained without letting bothersome questions get in the way. How come enormous flying saucers, flying low, are seen by only a handful of people? Go figure. Why don't more of those who do see them come forth with their stories? Because bad men in the military kill or imprison them. (We see a lot of these bad guys, glowering down into the camera like stepfathers bawling out their wards.) Why do the military officers suppress the story, when exposing it would quadruple their budgets overnight? Because they're frightened and mean. (As our child narrator patiently explains, adults get mean *because* they're frightened. Thanks, kid, but did you know adults can also get testy when they're treated like children?)

In the end, *Taken* belongs to the time-honored sci-fi tradition of two-dimensional heroes rescuing anxious girls from reptilian aliens, and there's little harm in that. Sitting through it does make you wonder, though, what would happen if all that talent, money, and time were devoted to a grown-up subject. The Indian wars, for example: Imagine a twenty-hour TV miniseries, rooted in fact rather than fancy, with characters ranging from Sitting Bull and Red Cloud to George Armstrong Custer and U.S. Grant, that covered, say, the forty years between the great council that brought thousands of Plains Indians to Fort Laramie in 1851 and the 1890 massacre at Wounded Knee. The fact that *Taken* was a hit demonstrates that viewers are prepared to spend as much time watching a movie as it would take to read a substantial book, provided that they find the drama sufficiently compelling. It may be too much to hope that an epic of comparable quality will soon be devoted to a serious subject like the Indian wars, much less the quest for intelligent life beyond Earth. But surely it can be done for one that's not claptrap. □

Bait and Switch on 'Roswell: The Smoking Gun'

DAVID E. THOMAS

In November 2002, the Sci Fi Channel heavily promoted a new documentary about the Roswell UFO Incident. The promotion for the November 22 program, titled "The Roswell Crash: Startling New Evidence," made this surprising declaration about the program: "Working under top-secret conditions, archaeologists from the University of New Mexico, in partnership with Sci Fi Channel, set out to uncover conclusive physical evidence to help prove whether the claim of an extraterrestrial craft crash is science fiction or science fact. Hosted by Bryant Gumbel . . ." (Sci Fi 2002).

Before the airing, the leader of the UNM archaeology team, Bill Doleman, would only hint that he had found "something" (Fleck 2002a). His words were limited, because the Sci Fi Channel would not allow any comments prior to the November 22 airing. In an online chat for the Sci Fi Channel a few days before the program, Doleman just said "Watch the show, your eyes will be opened wide" (Doleman 2002b). The promotions for the show promised to deliver startling new "smoking gun evidence." It wasn't stated explicitly by Sci Fi, but most observers got the obvious impression that the new "smoking gun" must have *something* to do with the official, scientific archaeological dig the Sci Fi Channel was so excited about. As it turned out, nothing could have been further from the truth. The archaeology dig was the "bait." A dubious analysis of overenlarged images of a fuzzy half-century-old photograph would be the "switch."

I started worrying that the show would be a hopeless disaster when I got a look at the Test Plan for the dig (Doleman 2002a). The biggest red flag was the statement that "Mssrs. Don Schmitt and Tom Carey—recognized Roswell Incident researchers—will serve as technical advisors on the project." Schmitt has severe credibility problems, especially within the UFO community. There were other omens in the Sci Fi Channel chat (Doleman 2002b): Doleman said, "I would note that all the volunteers were very UFO savvy." That is, the volunteers wielding trowels and bagging specimens for the ten-day dig were UFO believers brought in by the Sci Fi Channel. Doleman did provide some very reasonable comments during his Sci Fi chat. He said, "I know of no professional archaeologist who claims to have any evidence of alien visitation of Earth," and "I think we all recognize the importance of putting the pudding to the test, and tasting it." But Doleman also hinted that he believes there *is* something to the Roswell Incident: "While the story has a life of its own, there is probably a grain of truth, whatever it might be, at the heart of what anthropologists call an oral tradition."

I mentioned my concerns on the news log of the *New Mexicans for Science and Reason* (*NMSR*, www.nmsr.org), writing ". . . Schmitt is a very poorly-regarded UFO researcher. He is the author of two Roswell books with Kevin Randle, but Randle broke off his partnership with Schmitt when he found that Schmitt had lied to him about his college degrees, about working as a medical illustrator, and about being in the witness protection program. Schmitt told Randle he was not a postman (on tape!), but it turned out he *was* a postman after all" (see Randle 1997 for the details). I concluded the pre-show Web log with this tentative assessment: "Has definitive proof of life on other planets been found at last? Or is this just another over-hyped event like Geraldo's opening of Al Capone's vault? Will UNM be at the center of the most ground-breaking story of the millennium, or will UNM's integrity as a scientific research institution be co-opted by sleazy network executives out for a fast buck? Will there be a name change to the UNM College of Arts and Science Fictions? Maybe we'll find out November 22."

When November 22 finally rolled around, my fears were realized in spades. As far as the archaeological dig

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went, the "something" turned out to be a v-shaped feature found in a backhoe trench made at the spot where advisors Schmitt and Carey thought the Roswell craft had skidded long ago. *The Albuquerque Journal*'s John Fleck summed it up this way in his November 23 story, "Aliens Must Have Packed Up, Left": "It might be a furrow in the earth from the crash of an alien spacecraft. Or it might be a coyote burrow. The strange furrow and some bags of dirt locked away for further study are all the Sci Fi Channel has to show for ten days of excavation at one of the most bizarre sites in American archaeology. . . ." (Fleck 2002b)

Doleman has said repeatedly that he is not getting good treatment from the media. He told me in an e-mail that reporting is "reductive," and that the reporter will only write about what he or she wants heard. Doleman said that reporter Fleck had not mentioned many of the things he had emphasized to him personally, such as the backhoe operator's assertion that the v-shaped trench was not an artifact of the backhoe, and that the operator had "felt" the anomaly through the controls. Doleman expressed more reservations about the media in an Archaeology Channel audio interview for the Web (Doleman 2002c), and said this about *NMSR*'s article when asked about any negative reactions: "New Mexicans for Science and Reason had some things on their Web site that was [*sic*] fairly negative. Most of it I can trace to people mistakenly thinking that what I found proved the existence of UFOs. I never said that at all." (Actually, *NMSR*'s comments mainly expressed concern over the project advisors Schmidt and Carey, and said *nothing* about the still-embargoed findings of the UNM archaeologists.)

And that was about all there was to the archaeology part of the November 22 Sci Fi program. The team did turn up an "alternative furrow," but everyone lost interest in that when it turned up in a 1946 photograph, taken a year before the alleged Incident. There are also the many bags of specimens that the Sci Fi Channel made a big show of having guarded under lock and key. But these bags don't contain any obviously intriguing specimens such as, say, a piece of a spaceship. In fact, some material bagged by one of the eager volunteers as possible "fiber optics" was simply some nylon strands from the team's grid lines (Doleman 2002c). An official analysis remains to be conducted, but when I met with Doleman he suggested that there would be no "show stoppers."

So, what *was* the Sci Fi Channel's shocking new evidence? As John Fleck described it in his November 23 story, "The most dramatic 'smoking gun' in Friday's show came in the form of a piece of paper in an Army officer's hand in a 1947 photo. A UFO researcher, David Rudiak, claims a computer enhancement of the photo allowed him to read about 'victims' and a crashed disk in the old memo. Critics say Rudiak's analysis is little more than fuzzy blobs in the blown-up images interpreted to suit his preconceived notions about Roswell. 'It's totally subjective,' said Dave Thomas, a Peralta physicist and longtime Roswell crash skeptic. 'The 'smoking gun' is just suggestive wishful thinking' . . ." (Fleck 2002b).

Rudiak's claims about the Ramey photo, and his belief that the words "victim of the crash" can be read with enough confidence to say that this proves a spaceship really did crash near Roswell, have been bantered around the Internet for over two years. Rudiak is absolutely convinced that his analysis is genuine, and spends much time rebutting his critics. One of his strongest critics is UFO author Kevin Randle, who has extensively tested Rudiak's claims with Jim Houran (Randle 2002). Randle's conclusion: "The real point here, however, is that the word 'Victims' is not clearly legible to those who have not been told that it appears in the memo, or told where to look."

Bill Doleman

Three days after the Sci Fi "Smoking Gun" show, I e-mailed Rudiak for the first time, asking, "Has your method ever been applied to other messages with similar levels of distortion and fuzziness? Have you been able to decode such messages with proper blind protocols? In other words, has your technique ever been validated?" I went on to ask Rudiak to consider participating in such a test, and I offered this method of avoiding any funny business: ". . . I would send images (both fuzzy and clear) to an impartial, respected third party before any 'decoding' is performed; then, after you've decoded the message, that third party could easily assess the accuracy of the translation, and inform all participants of the results. Are you interested? If so, do you have suggestions for a respected, impartial third party to ensure a proper comparison? Best regards from New Mexico, Dave Thomas."

I never received an answer to this letter. I wondered if Rudiak was reacting to it, however, when his Web site added a new poll asking visitors to judge for themselves. Rudiak's poll consists of leading questions, which simply "prime" people with what they are expected to see. The first questions in Rudiak's "Citizen's Poll" are "Are the words, 'The Victims' present in the Ramey memo?" and "Is the phrase, 'In the Disc' present

in the Ramey memo?" (Rudiak 2002a). But the confirmation that David Rudiak had indeed received my suggestion for a validation test came quite unexpectedly, when I stumbled upon a Web site operated by UFO buff Grant Cameron (Cameron 2002). He wrote ". . .James Oberg has reappeared and issued a challenge to David Rudiak related to his revolutionary research on the 1947 Ramey UFO Memo. The research was referred to by the Sci Fi channel in their recent 2-hour Roswell documentary special as 'smoking gun' evidence. Dave Thomas, a UFO skeptic from New Mexico, has made the same offer to Rudiak. 'There is obviously a lot of collaboration going on amongst these people to discredit me,' Rudiak said. 'That's probably a good sign. It means my work has hit a big fat nerve.'. . . If Rudiak accepts the challenge he immediately grants either Thomas or Oberg an instant position as the official debunker on any national media coverage of Rudiak work. This instant national 'Sci Fi Channel debunker' status will be gained without having done five minutes research. It is a wonderful ploy for fame and fortune. The test, as Rudiak knows will be a 'no-win' test set up to muddy the waters. . . . A second major problem David is aware of is that it impossible to convince a skeptic of anything. That is because 'skepticism' is based on an attitude, and has nothing to do with rational thought. . . ."

Rudiak claims earth-shaking proof of an earth-shaking event, and yet refuses to correspond with critics directly, preferring to demonize them behind their backs. Such cheesy tactics would hardly be needed if there was actually any meat to Rudiak's claims. But to really appreciate the depth and breadth of David Rudiak's UFO research, one must learn about his attack on the character of Charles Moore, the physicist who launched the experimental balloon train now widely regarded as the actual source of the Roswell Incident (Thomas 1995). In a Web article titled "The Phony Mogul Balloon Trajectory: How a debunker scientist 'cooked the books' to support his pet theory" (Rudiak 2002b), Rudiak dissects Moore's physics analysis of just which way a balloon launched from Alamogordo on June 4, 1947, would have traveled, given the best available historical knowledge of weather conditions and balloon performance. Moore discussed the trajectory calculations in detail in a book he co-authored with Benson Saler and Charles A. Ziegler (Saler 1997). Moore offered his analysis as "A possible ground track for NYU Flight #4," and described it as a "qualitative test," not a quantitative one. Yet Rudiak has found reams of points to quibble with. Preferring volumes of quantity over quality, Rudiak's analysis runs page after mind-numbing page. The most serious charge he levels at Moore is that "his math is wrong . . . Moore . . . ended up corrupting his own data . . ." and "Moore's calculation of a trajectory from the table he sets up based on these assumptions is also mathematically bogus."

Rudiak claims earth-shaking proof of an earth-shaking event, and yet refuses to correspond with critics directly, preferring to demonize them.

I spoke with Professor Moore about all this on November 27, but he didn't want to get into the math behind Rudiak's shrill accusations. He simply reiterated that his trajectory calculations were "not the last word," and were mainly interesting because they showed that prevailing conditions that day did not rule out the *possibility* that Flight #4 crashed into the Foster Ranch, causing the Roswell Incident.

So I conducted my own physics calculation. I cracked open Moore's book, and typed in his givens (balloon altitude, wind speed, and wind direction over time) into a spreadsheet. I then calculated winds in north and east directions, and these agreed exactly with Moore's figures. To calculate the variable of interest here—the ground track of Moore's 1947 balloon launch—I read the legend of Moore's table (also posted on Rudiak's Web site), which specified that eastward and northward displacements were obtained by summing the products of the appropriate wind speed components with the corresponding time intervals. Mathematically, this is as simple as saying that distance equals velocity times time. When I entered in these formulas, my results agreed almost perfectly (less than a quarter-mile discrepancy over the whole trajectory) with Moore's. The small differences could easily have been due to roundoff—Moore was working with internally precise numbers, while I only had the rounded-off values I typed in from the table. The main thing was that I found absolutely *no* evidence of "cooking the books"—indeed, Moore described his work in such a fashion that another physicist, following his directions, could get near-identical results. Roswell skeptic Tim Printy has published a thoughtful analysis of many of Rudiak's claims, arriving at the same conclusion I did (Printy 2002).

I also found that I could get close to Rudiak's "very different" proposed trajectory by jogging the calculation by one time step. In the altered calculation, the balloon goes eastward for one extra time step (about thirty minutes), and thus

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Bone (Box) of Contention: The James Ossuary

JOE NICKELL

Supposedly recently discovered, the James ossuary—a limestone mortuary box that purportedly held the remains of Jesus' brother—is the subject of controversy. It has captured the attention of theologians, secular scholars, laity, and journalists around the world. Some have rushed to suggest that the inscription on it is the earliest-known reference to Jesus outside the bible, providing archaeological evidence of his historical existence.

"World Exclusive!" proclaimed *Biblical Archaeology Review*. "Evidence of Jesus Written in Stone," the cover continued; "Ossuary of 'James, Brother of Jesus' found in Jerusalem." Urged the contents page: "Read how this important object came to light and how scientists proved it wasn't a modern forgery."

Actually, as we shall soon see, the matter is much less clear than such hype would suggest, and there are many questions yet to be answered.

Background

The initial report in *Biblical Archaeology Review* (*BAR*) was written by a French scholar, André Lemaire (2002), who believes both the artifact and its inscription authentic. Such an ossuary, or "bone box," was used to store bones in Jewish burial practice during the period from the first century B.C. to the Roman destruction of Jerusalem in 70 A.D. (In this tradition the corpse would first be interred in a niche in a burial cave. After about a year, when the remains became skeletonized, the bones were gathered into a chest, usually made from a hollowed-out block of limestone fitted with a lid [Figueras 1983, 26]).

The James Ossuary: Did this limestone box—the focus of heated controversy—once hold the bones of Jesus' brother? (Photographs by Joe Nickell)

Incised on one of the James ossuary's long sides, the inscription consists of a single line of twenty small Aramaic characters. It reads (from right to left): "Ya'akov bar Yosef akhui diYeshua"—that is, "Jacob [English James], son of Yosef [Joseph], brother of Yeshua [Jesus]." Based on the script, Lemaire dates the inscription to some time between 20 B.C. and 70 A.D. And he believes that the inscription's mention of a father named Joseph plus a brother named Jesus suggests "that this is the ossuary of the James in the New Testament," which in turn "would also mean that we have here the first epigraphic mention—from about 63 C.E.—of Jesus of Nazareth" (Lemaire 2002, 33).

Lemaire believes the inscription has a consistency and correctness that show "it is genuinely ancient and not a fake." The box was examined by two experts from the Geological Survey of Israel at the request of *BAR*. They concluded that the ossuary had a gray patina (or coating of age). "The same gray patina is found also within some of the letters," he wrote, "although the inscription was cleaned and the patina is therefore absent from several letters." They added, "The patina has a cauliflower shape known to be developed in a cave environment." The experts also reported they saw no evidence of "the use of a modern tool or instrument" (Rosenfeld and Ilani 2002).

Unfortunately, the *cleaning* of the inscription—an act either of stupidity or shrewdness—is problematic. It might have removed traces of modern tooling. And when we are told that the patina is found "within some of the letters," we should certainly want to know which ones, since scholars have debated whether the phrase "brother of Jesus" might be a spurious addition (Altman 2002; Shuman 2002).

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It is even possible for traces of patination in an inscription to be original when the carving is not. That could happen if—as is the case of the James ossuary—shallow carving was done over a deeply pitted surface. The patinated bottoms of remnant pits could thus remain inside the fresh scribings.

In any case the patina may not be all it is claimed. According to one forgery expert, because patination is expected with age, "The production of a convincing patina has therefore been of great interest to those engaged in faking or restoration" (Jones 1990). Although false patinas are most commonly applied to metalwork, stone sculptures and artifacts—including fake "prehistoric" flint implements—have been treated to create the appearance of antiquity (Jones 1990). For example, the versatile forger Alceo Dossena (1878–1937) produced convincing patinas on marble (a hard, metamorphic limestone) that gave his works "an incredible look of age" (Sox 1987).

The patina traces of the James ossuary inscription have already been questioned. Responding to the claim that patina was cleaned from the inscription, one art expert notes that genuine patina would be difficult to remove while forged patina cracks off. "This appears to be what happened with the ossuary," he concludes (Lupia 2002).

Provenance

The reason for questioning the patina is that additional evidence raises doubts about the ossuary's authenticity. To begin with, there is the matter of its provenance, which concerns the origin or derivation of an artifact. Experts in the fields of *objets d'art* and other rarities use the term to refer to a work's being traceable to a particular source. For example, records may show that an artifact came from a certain archaeological dig, was subsequently owned by a museum, and then, when the museum sold off some of its collection, was bought by a private collector.

Provenance matters more with a sensational artifact, and the refusal or inability of an owner to explain how he or she acquired an item is, *prima facie*, suspicious—a possible indicator of forgery or theft. One of my cases, for instance, concerned a purported manuscript of Lincoln's celebrated Gettysburg Address (actually the second sheet of what was ostensibly a two-page draft, signed by Lincoln). Suspicions were raised when it was reported that the dealer who sold the item wanted to remain anonymous, and my subsequent ultraviolet and stereomicroscopic examination revealed it was a forgery (Nickell 1996).

The ossuary's inscription (a portion of which is shown here) seems suspiciously sharp-edged for its apparent age.

With the James ossuary, the provenance seems to be, well, under development. In his *BAR* article, André Lemaire (2002) referred to the "newly revealed ossuary" which he would only say was "now in a private collection in Israel." A sidebar stated that on a recent visit to Jerusalem, "Lemaire happened to meet a certain collector by chance; the collector mentioned that he had some objects he wanted Lemaire to see." One of the objects was the James ossuary (Feldman 2002).

The owner had pleaded with reporters not to reveal his name or address, but he was apparently uncovered by the Israeli Antiquities Authority.

He is Oded Golan, a Tel Aviv engineer, entrepreneur, and collector. Golan explained that he had not wished to be identified due to concerns for privacy.

"It's a character issue," he told the Associated Press (Laub 2002). "I don't like publicity." But Golan received some attention that may have been most unwanted: He came under investigation by the Antiquities Authority's theft unit (Scrivener 2002).

According to Golan, he bought the ossuary in the Old City (old Jerusalem) "in the 1970s," paying a few hundred dollars to an Arab antiquities dealer he can no longer identify (Van Biema 2002; Adams 2002; Wilford 2002). He has said that it was the box's engraving that interested him, yet nothing in the phrase "James, son of Joseph, brother of Jesus" ever "rang a bell" in Golan's mind (Adams 2002). Incredibly, the sensational inscription had to wait three decades before finally being appreciated by André Lemaire.

Many scholars were horrified that the ossuary had apparently been looted from its burial site—not just because looting is illegal and immoral, but because an artifact's being robbed of its context "compromises everything," according to P. Kyle McCarter Jr., who chairs the Near Eastern studies department at Johns Hopkins University. McCarter added, "We don't know where [the box] came from, so there will always be nagging doubts. Extraordinary finds need extraordinary evidence to support them" (Van Biema 2002).

Not only the box's provenance was lost but also, reportedly, its contents which might have helped establish its provenance. "Unfortunately," stated André Lemaire (2002), "as is almost always the case with ossuaries that come from the antiquities market rather than from a legal excavation, it was emptied." I lamented this reported state of affairs to a reporter (Ryan 2002), observing that the bones could have been examined by forensic anthropologists to potentially determine cause of death. James was reportedly thrown

from the top of the Temple and stoned and beaten to death (Hurley 2002), so his skeletal remains might show evidence of such trauma.

As it turns out, Lemaire did not mention—perhaps he did not know—that Mr. Golan has a Tupperware container of bone fragments he says were in the ossuary when he acquired it. One piece is as large as one-half inch by three inches, and has raised questions about potential DNA evidence. Yet, according to *Time* magazine, Golan will not allow the fragments "to be displayed or analyzed" (Van Biema 2002).

Further Suspicions

In addition to the questionable provenance, the exterior appearance of the ossuary also raises suspicions. To view the box, which was on display at the Royal Ontario Museum, I recently traveled to Toronto with several of my Center for Inquiry colleagues. They included Kevin Christopher, who has degrees in classics and linguistics, with whom I had been studying the case (see acknowledgments). We were able to get a good look at the box, and what we observed raised eyebrows.

First of all, I was surprised to see that the ossuary was far from being "unadorned" as Lemaire (2002, 27) reported. He stated that "The only decoration is a line forming a frame about 0.5 inch (1.2 cm) from the outer edges," but he is mistaken. Significantly, on the side opposite the inscribed side are circular designs, badly worn but unmistakably present.

Now, ossuaries are usually decorated on only one side (Royal 2002), presumably the one intended to face out during storage. If a name was added (possibly with an identifying phrase), it was apparently carved after purchase by someone such as a family member (Figueras 1983, 18). A look at a number of ossuaries (Figueras 1983; Goodenough 1953) shows that the name might be engraved on the decorated side if there were space for it; otherwise it might be cut on the top, an end, or the back. Wherever placed, it "probably faced outwards where it could be read" (Altman 2002a).

In the case of the James ossuary, there would have indeed been room on the front, yet the scribe elected to carve the inscription on the back. (A possible reason for this will soon become evident.)

The ossuary was featured in this elaborate temporary exhibit at the Royal Ontario Museum in Toronto.

Furthermore, the box's decorations—the carved "frame" Lemaire referred to which outlines all four sides, plus the circular designs—are badly worn, whereas the inscription seems almost pristine. That is, the decorations are blurred, partially effaced, and (like much of the surface) pitted. Yet the lettering is entirely distinct and blessed with sharp edges, as if it were of recent vintage. My colleagues and I were all struck with that observation. So was an Israeli engineering professor, Dr. Daniel Eylon, of the University of Dayton, who noted that "sharp edges do not last 2,000 years."

Dr. Eylon applied a technique that is employed in determining whether damage to an airplane part occurred prior to an accident or after it.

Examining photographs of the inscription for scratches accrued over time, he stated: "The inscription would be underneath these scratches if it had been on the box at the time of burial, but the majority of this inscription is on top of the scratches" (Eylon 2002).

The inscription's off-center placement is even in an area of the back that suffers the least damage. Commenting on what is termed biovermiculation—that is, "limestone erosion and dissolution caused by bacteria over time in the form of pitting and etching"—one art historian states: "The ossuary had plenty except in and around the area of the inscription. This is not normal" (Lupia 2002). Indeed, that is one of the first things I had observed in studying the James ossuary. It suggested a forger might have selected a relatively smooth area of the back as a place to carve the small, neat characters.

Early on, the text of the inscription itself raised doubts among experts familiar with Aramaic scripts. They observed that the "James, son of Joseph" portion was in a seemingly formal script while the "brother of Jesus" phrase was in a more cursive style. This suggested "at least the possibility of a second hand," according to one expert (McCarter 2002). Another states, "The second part of the inscription bears the hallmarks of a fraudulent later addition and is questionable to say the least" (Altman 2002b). But the perceived dichotomy in styles may simply signal that the forger was an inexpert copyist or that the effect results from the vagaries of stone carving.

Taken together, the various clues suggest a scenario in which a forger purchased a genuine ossuary that—lacking feet, elaborate ornament, and inscription—cost little. He then obtained an Aramaic rendition of the desired wording, carved it into what seemed a good spot on the blank back, and perhaps added patination followed by "cleaning" to help mitigate against the fresh look of the carving.

Forgers frequently select genuine old artifacts upon which to inflict their handiwork. Examples that I have personally investigated and helped expose include such inscribed works as two Daniel Boone muskets, the diary of Jack the Ripper, *a carte de visite* photo of Robert E. Lee, a dictionary with flyleaf notes by Charles Dickens, and many more (Nickell 1990; 1996).

Mounting evidence has begun to suggest that the James ossuary may be yet another such production.

Acknowledgments

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ends up about seventeen miles farther northeast than in Moore's original calculation. The small difference is within the error of Moore's data. His point, after all, was to show that the winds that day did not *preclude* the balloon's arrival at the Roswell ranch. Had Moore's analysis showed the balloon traveling south, say, to El Paso, now *that* would have eliminated Flight #4 as a candidate for the Roswell debris source.

Rudiak's charges of Moore's "cooking the books" are much stronger evidence of Rudiak's incompetence than they are of Moore's alleged scientific malfeasance.

In the end, the Sci Fi Channel's ballyhooed "Smoking Gun" turned out to be just the same old stuff: more fuzzy photographs and shrill charges of conspiracy. It promised solid new scientific evidence, but the Sci Fi Channel exploited the UNM archaeologists' careful work, to the University's embarrassment. In the ongoing effort to solidify and entrench the Roswell Myth, some cracks are beginning to show.

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Lessons of the 'Fake Moon Flight' Myth

JAMES OBERG

Depending on the opinion polls, there's a core of Apollo moon flight disbelievers within the United States—perhaps 10 percent of the population, and up to twice as large in specific demographic groups. Overseas the results are similar, fanned by local attitudes toward the U.S. in general and technology in particular. Some religious fundamentalists—Hare Krishna cultists and some extreme Islamic mullahs, for example—declare the theological impossibility of human trips to other worlds in space.

Resentment of American cultural and political dominance clearly fuels other "disbelievers," including those political groups who had been hoping for a different outcome to the Space Race—for example, many Cuban schools, both in Cuba and where Cuban schoolteachers were loaned, such as Sandinista Nicaragua, taught their students that Apollo was a fraud.

Like a counter-culture heresy, the "moon hoax" theme had been lingering beyond the fringes of mainstream society for decades. A self-published pamphlet here, or a "B-grade" science fiction movie there, or a radio talk show guest over there—for many years it all looked like a shriveling leftover of the original human inability to accept the reality of revolutionary changes.

But in the last ten years, an entirely new wave of hoax theories have appeared—on cable TV, on the Internet, via self-publishing, and through other "alternative" publication methods. These methods are the result of technological progress that Apollo symbolized, now ironically fueling the arguments against one of the greatest technological achievements in human history.

NASA's official reaction to these and other questions was both clumsy and often counter-productive. On the infamous Fox Television moon hoax program, which was broadcast several times in the first half of 2001, a NASA spokesman named Brian Welch appeared several times to counter the hoaxist arguments (Welch was a top-level official at the Public Affairs Office at NASA Headquarters, who died a few months later). The poor TV impression he gave (a know-it-all "rocket scientist" denouncing each argument as false but usually without providing supporting evidence) may have been due to deliberate editing by the producers to make the "NASA guy" look arrogant and contemptuous. But to a large degree it accurately reflected NASA's institutional attitude to the entire controversy. The disappointing results of participating seemed to strengthen the view within NASA that the best response was no response—to avoid anything that might dignify the charges.

Roger Launius, then the chief of the history office at headquarters, was an exception to NASA's overall unwillingness to engage the issue. As an amateur space historian and folklorist, I had been discussing with him for years the need for NASA to fulfill its educational outreach charter and to issue a series of modest *monographs* (a historian's term for a single-theme pamphlet-length publication) on many different widespread cultural myths about space activities. These ranged from allegations of UFO sightings (and videotapings) by astronauts, to the discovery of alien artifacts on the Moon and Mars and elsewhere, to miraculous and paranormal folklore associated with space activities, to the hoax accusations. Launius, nearing retirement in early 2002, decided it was time for a detailed response to the Apollo hoax accusations, and offered me a sole-source contract to write a monograph that analyzed why such stories seemed so attractive to so many people. Launius departed NASA soon thereafter, leaving the project in the care of a junior historian, Stephen Garber.

My requests for inputs from various NASA offices and public educational organizations soon reached the ears of news reporters, and some print stories appeared in late October. Although NASA officials were somewhat taken aback by the publicity, they were at first inclined to defend the project on educational grounds.

Then, on Monday, November 4, 2002, the eve of the national elections,

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Germany: Monsters, Myths, and Mysteries

Located in the heart of Europe, Germany has had a more profound impact on the history of the continent than any other country. According to one source: "From Charlemagne and the Holy Roman Empire to Otto von Bismarck's German Reich, Nazism and the rise and fall of the Berlin Wall, no other nation has molded Europe the way Germany has—for better or for worse" (Schulte-Peevers et al. 2002, 17). Today, freed of its own post-World-War-II division, Germany leads in the effort to unite Europe.

In October 2002, I made my second visit to Germany, this time to speak at the biannual symposium of the European Council of Skeptical Organizations and to conduct an investigations workshop for German skeptics at the Center for Inquiry–Europe in Rossdorf. I was also able, with the untiring assistance of the center's Executive Director, Dr. Martin Mahner, to spend the remainder of the sixteen-day trip investigating a number of myths and legends, only a few of which, alas, can be discussed in this investigative travelogue.

Frankenstein Castle

The great monster story and pioneering work of science fiction, Mary Shelley's 1818 novel *Frankenstein*, may have taken its name from this ruined fortress (figure 1), which is otherwise linked to monster and bodysnatching tales.

Figure 1. Ruins of Frankenstein Castle atop Magnet Mountain.

Most accounts of the fictional creation of Frankenstein's monster rely on Mary Shelley's own version of events. It was a dark and stormy night in 1816. She (then Mary Godwin) and her future husband, poet Percy Bysshe Shelley, were at the Swiss villa of another famous English poet, Lord Byron, together with two others. They had been reading French translations of German ghost tales when Byron suddenly proclaimed, "We will each write a ghost story" (Hindle 1992).

Mary Shelley would subsequently write in her Author's Introduction that the two poets had discussed rumors of animation experiments and speculation that "galvanism" (electricity) might reanimate a corpse. With such thoughts in mind, she retired after "the witching hour" but did not sleep. Instead, her imagination led her to see—"with shut eyes, but acute mental vision"—"the pale student of unhallowed arts kneeling beside the thing he had put together." She continued: "I saw the hideous phantasm of a man stretched out, and then, on the working of some powerful engine, show signs of life, and stir with an uneasy, half-vital motion. Frightful must it be; for supremely frightful would be the effect of any human endeavor to mock the stupendous mechanism of the Creator of the world" (Shelley 1831).

Mary does not state how she adopted the name Victor Frankenstein for the monster's creator. However, Radu Florescu in his *In Search of Frankenstein* (1975, 45–62) makes a convincing case that it was inspired by Burg Frankenstein (i.e., "castle of the Franks' rock"). Located about seven kilometers from Darmstadt, the ruins are those of a castle originally built on a smaller scale about 1250. Florescu points out that Mary and her lover Shelley had earlier visited the region, traveling by boat down the Rhine in 1814. They must surely have known they were

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in "Frankenstein country" and probably spied the castle's distinctive double-towers silhouetted atop the mountain.

It is even possible they visited the castle itself or, in any event, learned from their German traveling companions its legends. These include the tale of Knight Georg von Frankenstein and a dragon-like monster that had terrorized the vicinity. Sir Georg was a real person whose tomb in the nearby village of Nieder-Beerbach bears the date of his death in 1531. Although he slew the creature—probably only a snake (the exaggeration being attributable to his popular identification with St. George the dragon slayer)—it succeeded in piercing his armor below the knee and so poisoning him (Florescu 1975, 53–69).

Other legends relating to Burg Frankenstein concern an alchemist, Johann Konrad Dippel (1673–1734). Although not a descendant of the Frankensteins, Dippel had been born in the castle and at university registered as a resident of "Franckensteina." However, after two years marked by "scandalous behavior," he was forced to flee at night due to a "serious incident," rumored to have involved bodysnatching from a local cemetery. Subsequently, Dippel turned to alchemy and claimed to have discovered a secret formula by which he transmuted silver and mercury into pure gold. He also sought to produce an elixir of life, and to that end conducted experiments in distilling blood and the boiled residue of bones.

In his eventual medical thesis at the University of Leiden (1711) Dippel focused on his previous chemical experiments and animal studies. He practiced vivisection on animals and came to believe that the body was an inert mass animated by a spirit that could be transformed into another corpse to reanimate it (Florescu 1975, 63–86).

The parallels between Mary Shelley's character, Victor Frankenstein, and Konrad Dippel, the alchemist, are striking, as Florescu (1975, 86) observes.

Not everyone accepts the evidence, however. One source cautions that the lack of substantiated information about Dippel's life "leaves much room for doubt, and many of the traits attributed to him may postdate Mary Shelley's novel" (Johann 2002). Also, some of Mary Shelley's admirers resent the implications of the evidence, that her use of a real-life model calls into question her originality (Clerici 2002). However, great writers have frequently relied on sources while adapting them to their creative purposes.

If it is true that Dippel and Frankenstein Castle were sources for Mary Shelley's novel, it seems fittingly ironic that in recent years "monsters" have returned to the castle. No, Martin Mahner and I saw no strange creatures when we prowled the ruins and surrounding forest, but throughout the region we did encounter posters and ads for spooky goings-on, emblazoned "Halloween/Burg Frankenstein." (Martin notes that Halloween—not a German tradition—was established by Americans, there still being American army facilities in nearby Darmstadt.)

Alien Hybrid?

In a cabinet in a small natural-history museum in Waldenburg, Saxony, is a strange curio (figure 2) that one writer has termed "Germany's greatest mystery" (Hausdorf 2000). It is the fetus of—well, that is the question: what is it? Could it be—as some UFOlogists insist—an alien hybrid?

Known locally from its strange appearance as the "chicken man," the fetus can be traced to the year 1735 when it was stillborn in the Saxonian village of Taucha. It was to have been the fourth child of Johanna Sophia Schmiedt, who was in the eighth month of her pregnancy. She was twenty-eight and her husband Andreas, "a hunchback," ten years her senior. Two years later, in 1737, Leipzig physician Gottlieb Friderici autopsied the preserved fetus and published a report, illustrated with two copperplate engravings and titled "Monstrum Humanum Rarissimum" ("Most Rare Human Monster") (Müller 1999; Monstrum 1994; Ausserirdisches 2002).

Dr. Friderici concluded that the term "monster" was appropriate because of the fetus's divergence from normal human anatomy. According to one treatise on monsters, "From the earliest

Figure 2. Alleged "alien hybrid" in Saxony.

period of the world's history abnormal creatures or monstrosities, both human and animal, have existed from time to time and excited the wonder of mankind." The births of monsters were explained in superstitious, often supernatural, terms. They might be thought to presage calamities and disasters, or be considered as evidence of Divine wrath. Some believed them the result of mating with animals (Thompson 1968).

A widespread popular notion was that—along with birthmarks or other defects—they were caused by something the mother saw or touched during her pregnancy (DeLys 1989). In fact, in the case at hand, Mrs. Schmiedt's patient history recorded her own apparent explanation, that she previously had had a very frightening encounter with a marten (an animal related to the weasel).

In mentioning this, one writer suggests that the recollected marten was only a "cover memory" for an extraterrestrial encounter and that the deformed fetus was an alien/human hybrid. Supposedly it resembles the small "grays" (Ausserirdisches 2002) but the comparison is poor. For example, whereas that alleged type of humanoid is portrayed with a

large head, it lacks the bizarre bulbous growth of the fetus. And whereas the grays have a "distinguishing characteristic: black, wraparound eyes" (Huyghe 1996), the fetus instead possesses "very *round* eye sockets" (Ausserirdisches 2002 [emphasis added]).

One source claims of the fetus that "nothing in either its interior or exterior configuration corresponds to that which is considered to be human" (Monstrum 2002), but that is a ridiculous exaggeration. Not only does it have an essentially human body structure (a head atop a cylindrical trunk, with arms attached to the shoulders and legs extending from the hips), but the interior was found to contain such organs as a heart, liver, and lungs, according to Dr. Friderici's autopsy results.

One source claims of the fetus that "nothing in either its interior or exterior configuration corresponds to that which is considered to be human" but that is a ridiculous exaggeration.

The anatomy is also characterized by a vertebrate skeletal structure, although the lower-arm and -leg bones did not each become differentiated into two separate bones; the cranium had, in effect, burst open, and some of the skull bones (e.g., the upper jawbone) were missing.

Fringe paranormalists attribute the abnormalities to the purported hybridization. One Internet source bizarrely claims to have received inside information on the matter from "the Cassiopaeans," allegedly channeled extraterrestrial entities. "They" explained the fetus as "hybridized conception/gestate" and averred: "It was not an experiment. It was the result of Reptoid 'rape'" (Monstrum 2002).

Actually the "Cassiopaeans" are out of touch with reality. Visiting the museum with Martin Mahner, who has a doctorate in zoology, I was able to learn the true facts about the "chicken man." Museologist Ulrike Budig was most helpful, unlocking the cabinet's glass doors so we could examine and photograph the specimen from various angles.

We learned that genetic tests had been conducted by experts in Berlin and Heidelberg (Monstrum 1994). They studied the chromosomes using Comparative Genomic Hybridization, an analytical method developed in 1993. This showed that the fetus was female due to the presence of two X chromosomes. More importantly, the scientists discovered that large parts of chromosome 17 were missing and concluded that a genetic loss of that amount must be seen as the cause of the rare deformation. Because no other case of this particular chromosome-17 anomaly is known, it is assumed that the result is lethal, meaning that such embryos normally die at an early stage. Only in this unique instance, however, a further development of the embryo took place until the third trimester of the pregnancy (Müller 1999).

Dr. Dietmar Müller (1999), writing in the museum's official guidebook, observes sagely that, as occurred with folk of the eighteenth century, such deformations have also inspired the fantasies of some modern people. In this instance, he notes, "UFOlogists" have brought "aliens" into play, thus giving the museum specimen an unfortunate notoriety. However, he concludes that the scientific studies clearly prove that this specimen consists of human DNA.

Dachau

Although closed more than half a century ago, the name Dachau still evokes horror. After Adolf Hitler and his National-Socialists seized control of Germany on January 30, 1933, they began to inflict their Nazi ideology of racism and state supremacy on targeted groups: especially Jews, but also Gypsies, homosexuals, the mentally ill, dissenting clergymen, and many others. These began to fill Dachau, the first concentration camp, which was established March 20.

The camp also became the site of horrific medical experiments and executions. So many prisoners died or were killed there that a crematorium was built to dispose of the corpses. When it proved inadequate, in 1942 a new building—dubbed "Barracks X"—was constructed with four double-chamber ovens (Distel 1972; Marcuse 2001; Memorial [2002]). A gas chamber at that facility is still the subject of controversy.

Holocaust "revisionists" like David Irving have denied the existence of a gas chamber at Dachau. Irving declared that those at Auschwitz and elsewhere were fakes, "just as the Americans built the dummies in Dachau" (quoted in Evans 2001). The official view of the Dachau memorial itself is expressed by a sign on site, rendered in five languages: "Gas chamber[:] disguised as a 'shower room'—never used as a gas chamber." Others have stated that the chamber was indeed used.

The issue impacts the paranormal when ghost-monger Dennis William Hauck (2000) reports ghost sightings with regard to gas chambers at Dachau. "German historians insist these were used for disinfectant purposes," he writes, "but the paranormal evidence seems to contradict these claims." (More on this presently.) "Several reports," he continues, "of disembodied screaming, voices shouting 'gas,' and naked running apparitions originate from these shower stalls." He specifies no source for these reports, other than appending a general bibliography of ghost-promoting books and Internet sources. In any event, there is considerable evidence that apparitions are a product of the experiencers' own psychological and cultural expectations (Nickell 2001), evidence that it is people—not places—that are "haunted."

Hauck reproduces a photo taken by an American tourist that, he states, "appears to show a ghostly figure

running out of the showers." Actually, all I can see is a fuzzy, light area like others that can result from any of several mundane causes (Nickell 1994). Indeed, elsewhere in his book Hauck exhibits photos that, in my opinion, result not from ghosts but from glitches. These include some attributable to the camera's wrist strap (even one with its telltale loop! [p. 110]), an encroaching fingertip (p. 130), and the like, in each instance bouncing back the flash to create a white, ghostlike form.

Even when such anecdotal and photographic "evidence" is not immediately explainable, it still only represents the logical fallacy called "arguing from ignorance," since a conclusion cannot be drawn from an unknown.

Moreover, if ghosts did exist, Dachau should actually be crowded with them because, even setting aside the question of gas chambers, huge numbers perished there under the most horrendous conditions (Distel 1972).

The presence and use of gas chambers are matters best left to real evidence. On exhibit at Dachau is a copy of a letter, dated August 9, 1942, from Dr. Sigmund Rascher to the Reichsführer (Hitler). Translated, it reads in part: "As you know, in the concentration camp Dachau the same facilities are being built as in Linz [Austria]. Since the 'invalid transports' end up in certain chambers anyway, I am asking whether in these chambers the effect of our various war gasses couldn't be tested on the persons to be destined for such purpose anyway?"

There was a single gas chamber at Dachau, built as part of the new 1942 crematorium ("Barracks X") which Martin Mahner and I visited. The confusion of Hauck and others as to there having been several such facilities results from confusion caused by the presence of several nearby disinfection chambers; they were used to fumigate clothing to kill lice (Marcuse 2001).

Over the gas chamber entranceway is the old lettering, "BRAUSEBAD" ("shower bath"). As shown in figure 3, the door has heavy steel construction, a flange for airtightness, and external locking handles—all unnecessary for a mere shower. A similar door is on the opposite side, leading to another room that in turn leads to the ovens.

According to Harold Marcuse in his *Legacies of Dachau* (2001), the gas chamber was indeed made functional, although only "trial gassings" were actually conducted there. Until Dachau was liberated by American soldiers on April 29, 1945, large-scale exterminations continued to be carried out at the *Vernichtungslager* (extermination camps) like Treblinka.

Figure 3. Gas chamber (labeled "shower bath") at Dachau.

Nevertheless, as indicated, great numbers of Dachau's dead were cremated at "Barracks X." Paul Kurtz (1988), CSICOP's chairman who was a barely eighteen-year-old American GI in World War II, arrived at Dachau just days after it was liberated. "When I first visited Dachau, I stood in the pit where the ashes and bones of thousands of victims were strewn," he writes. "I saw the high piles of clothing and shoes that had been seized from the victims." There, and later at Buchenwald and elsewhere, he spoke with "victims of the Nazi scourge, who had suffered the torments of the extermination camps, and who with muted whispers recounted the tales of horror: men, women, and children herded into cattle cars, starved and beaten, driven into gas chambers, and then reduced to ashes."

Although I neither saw, heard, nor photographed any apparitions at the crematorium or anywhere else at Dachau, I am not surprised that others believe they have. Knowledge of the horrors there can easily inspire images of the past—"ghosts" that, which to many are deeply poignant metaphors, to others may actually seem to erupt into reality.

Satan's Footprint

Munich's twin-towered *Frauenkirche* ("church of Our Lady")—erected in 1468–1488—has a curious legend. It stems from an impression in the foyer's pavement that is said to be Der Teufelstritt, "the Devil's step."

Supposedly the architect, Jörg von Halspach, made a pact with Satan who agreed to supply money for the church's construction so long as it was built without a single window in view; otherwise the builder would forfeit his soul. When the church was completed, the architect led the devil to a place where he could view the well-lit nave, yet where no windows could be seen due to their being hidden by the great pillars. Furious, the devil stamped his foot, "leaving his black hoofed footprint in the pavement" (McLachan 2001).

Actually the imprint (see figure 4) is not a hoofed one at all, but rather "a footprint of a human being" as it is correctly described in a church flyer ("Black" n.d.).

One could write an entire treatise on footprints in stone. In addition to those of fairies are footprints of various holy persons including the Buddha, Christ, angels, Christian saints, and others, notably the Devil (e.g., Thompson 1955, I: 178–179). Of these, some may have been the effect of imagination applied to natural markings in rock, while others may have been pious frauds.

As to the folktale of the Teufelstritt, it exists in a number of *variants* (as folklorists say) that give evidence of the oral tradition behind it.

The greatest divergence in the varied tales is whether Satan stamped his foot in anger or out of triumph and glee. The latter versions, including the church's own flyer, tend to omit any interaction

between builder and devil and instead have Satan sneaking a view of the newly built church. Standing on the spot from which no windows can be seen and thinking that a windowless building is laughable, "in triumphal happiness he stamped into the floor, where he left this footprint in the ground." But as he took a further step, he saw the many windows: "Out of an anger he changed himself into a great wind and hoped he could blow the building down. But he failed; and since that time there is always a wind blowing around the towers" ("Black" n.d.).

Despite the variations, all of the accounts focus on the concept of a vantage point from which none of the huge windows can be seen. This is a very real effect, but only if we ignore the great stained-glass window on the opposite end of the church. While that is a replacement (the church was largely destroyed during World War II bombings but later underwent years of restoration), unfortunately for the legend makers there was a window there at the time of the church's completion in 1488. The legend of the non-visible windows must therefore have originated after 1620 when the window was blocked by a baroque high altar (remaining so until 1858 [*Die Frauenkirche* 1999, 10]), thus completing the illusion of no windows.

Moreover, examining the Frauenkirche's legendary footprint, I concluded that it was itself incompatible with its accompanying folktale. Whereas the foyer's pavement is a checkerboard pattern of red and gray marble, the imprint is not in one of those paving stones. Instead (as shown in figure 4) it is in a smaller *inset* square—apparently made of concrete and covered over (except for the footprint) with a hard, mustard-colored material that has suffered some cracking and breaking.

The next morning, while I examined and photographed the spot more extensively, Martin was able to strike up a conversation with the church warden. He admitted that the imprint was not genuine, stating that the floor had been restored and that the Teufelstritt was merely a reconstruction.

The church warden was uncertain whether or not the "original" footprint had been destroyed or perhaps was in a museum or storage somewhere. However, the other evidence of a post-1620 creation still demonstrates that the Teufelstritt and its attendant legend are apocryphal.

Figure 4. "The Devil's footprint" in the foyer pavement of a Munich cathedral.

A possibly innocent explanation is that the original footprint was put there by a stone mason when the floor was reportedly redone in 1671 (Schmeer-Sturm 1998). It could have been placed merely to mark the spot from which churchgoers could observe what was, after all, an intriguing little illusion. Then, after that purpose was no longer remembered, the legend could have been coined—by that notorious legend-maker, Anonymous.

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The Strange Case of Cathode Rays and What Counts for Evidence

In 1859, the year Darwin published *On the Origin of Species*, German physicist Julius Plücker discovered what for some time were referred to as "cathode rays." Plücker used a glass tube filled with air and containing a positive and a negative electrode. When he lowered the air pressure inside the tube to 0.001 mm of mercury and connected a source of electric potential to the positive electrode (the anode), the region of the glass near the negative electrode (the cathode) started glowing with green phosphorescence. Plücker's conclusion was that something was being emitted by the cathode, and one of his students, Johan Wilhelm Hittorf, demonstrated in 1869 that a solid placed between the cathode and the walls casts a shadow: the mysterious cathode rays were traveling in straight lines.

Physicists soon split themselves into two camps providing different theories concerning the nature of cathode rays: on the one hand they were thought to be atoms or gas molecules inside the tube that had become negatively charged. An alternative hypothesis was that they were not particles at all, but rather a type of wave moving through ether. Heinrich Hertz was among the physicists proposing the second scenario, and in 1883 he conducted a crucial experiment to demonstrate that cathode rays were not in fact charged particles. Hertz generated cathode rays inside an apparatus that included an electrometer to measure the electrical charge of the rays. He found that the electrometer did not register any charge, which led him to state that: "As far as the accuracy of the experiment allows, we can conclude with certainty that no electrostatic effect due to the cathode rays can be perceived."

Notice that Hertz's conclusion is very carefully stated: he did not say that cathode rays are not electrically charged, only that given the characteristics of his apparatus, there was no reason to believe so. In other words, his experiment was *evidence* for the hypothesis that cathode rays are not electrically charged.

In 1897, the British physicist J.J. Thomson repeated Hertz's experiment, obtaining the same results. However, he then went further and lowered the pressure of the air inside the apparatus more than was technically possible in Hertz's days. Sure enough, Thomson did detect a clear deviation of cathode rays toward a positively charged plate, which he took as conclusive evidence not only that the rays are electrically charged, but that they are negatively so (because negative charges are attracted to positive ones). Indeed, today we refer to cathode rays as electrons, which are subatomic particles that are negatively charged.

When exactly do we take something to be evidence for a particular conclusion? This is obviously of crucial importance to skeptical investigations.

We could end the story here, with another triumph of progressive science. But an important question lingers: when exactly do we take something to be evidence for a particular conclusion? This is obviously of crucial importance to skeptical investigations as well and it is worth pondering a bit. First off, notice that nobody here was disputing the facts. Thomson never believed Hertz's conclusions (which is why he carried out his experiments), but he did not question his

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results. Indeed, Thomson used the same sort of conditions employed by Hertz to *confirm* his results before showing why they were misleading.

There are at least three ways of thinking about the Hertz-Thomson story that reflect three concepts of evidence of which we need to be aware. First, one could say that Hertz's 1883 results were in fact strong evidence that cathode rays are not charged, but that the latter conclusion has nonetheless turned out to be false in the end. Second, we could claim that Hertz's results were strong evidence for the neutrality of cathode rays between 1883 and 1897, but no longer so after Thomson published his experiments. Finally, one might advance the proposition that Hertz's results were in fact *never* strong evidence that cathode rays are electrically neutral.

If we accept the first answer, we are saying that evidence is a matter of *epistemic* status, i.e., relative to the knowledge available in 1883, the first set of results were indeed good evidence to conclude for the neutrality of the rays. The fact that Hertz turned out to be wrong is not a problem, since one can be perfectly justified in believing a hypothesis even though it may not be true. Anybody in the same epistemic situation (i.e., with the same knowledge and understanding) of Hertz in 1883 would have been justified in accepting Hertz's conclusions.

In the second case, we are accepting a subjective view of evidence. What we are saying is that evidence is relative to a particular person or group of persons: it was sensible to accept Hertz's conclusions in 1883, but no longer in 1897. There is a subtle difference with the first case: subjective evidence requires that somebody actually *does* believe that the evidence in question supports a certain theory. The epistemic concept of evidence discussed above, on the other hand, is valid even without anybody actually believing that the evidence points to a certain conclusion: in the case of the epistemic situation, *if* anybody had access to the knowledge that Hertz had at the time, she would have been justified in agreeing with his conclusions.

Finally, one could say that evidence has to be veridical (i.e., has to carry truth-value), so that Hertz's experiments were not good evidence for his conclusions simply because later research showed that they were flawed in an important respect.

Most scientists (and, I suspect, many skeptics) are much more interested in the third (veridical) sense of evidence, while historians and philosophers are fascinated by the first two. The problem is that by the very nature of the scientific enterprise we can never be sure that some evidence is veridical in respect to a given theory: it could always happen that the next day somebody else publishes an experiment showing a flaw in the procedures followed thus far in order to demonstrate a certain conclusion. Just because we live in the twenty-first century doesn't mean we have an ahistorical, God's eye view of things, so that we *know* that Thomson was definitely correct and that's the end of the matter. All we can say is that, given our epistemic situation, it seems highly likely that Thomson did in fact reach the final conclusion on the nature of electrons. But we could be wrong.

Further Reading

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LESSONS OF THE FAKE MOON FLIGHT MYTH
From page 23

ABC's *World News Tonight* anchor Peter Jennings chose the subject for his closing story: "Finally this evening, we're not quite sure what we think about this," he intoned. "But the space agency is going to spend a few thousand dollars trying to prove to some people that the United States did indeed land men on the moon."

Jennings described how "NASA had been so rattled" it "hired" somebody "to write a book refuting the conspiracy theorists." He closed with a misquotation: "A professor of astronomy in California said he thought it was beneath NASA's dignity to give these Twinkies the time of day. Now, that was his phrase, by the way. We simply wonder about NASA."

Jennings was referring to Philip Plait, an educator (not a professor) in California who runs the Bad Astronomy Web site that discusses many mythical aspects of outer space. What Plait actually had said was that he felt it *was* proper for NASA to respond, but that it did seem "beneath their dignity" to be forced to do it. Contrary to Jennings's account, Plait fully supported the monograph contract.

But that TV insult did it as far as NASA management was concerned. Their dignity called into question, and fearing angry telephone calls from congressmen returning to Washington after the election, they decided to revoke the contract. They paid for work done to date and washed their hands of the project.

Many educators contacted me in dismay. Like them, and unlike the NASA spokesmen, I had always felt that "there is no such thing as a stupid question." And to me the moon hoax controversy was not a bothersome distraction, but a unique opportunity.

This is the way I see it: If many people who are exposed to the hoaxist arguments find them credible, it is neither the fault of the hoaxists or of their believers—it's the fault of the educators and explainers (NASA among them) who were responsible for providing adequate knowledge and workable reasoning skills. And the localized success of the hoaxist arguments thus provides us with a detection system to identify just where these resources are inadequate.

I intend to complete the project, depending on successfully arranging new funding sources. The popularity of this particular myth is a heaven-sent (or actually, an "outer-space-sent") opportunity to address fundamental issues of public understanding of technological controversies. □

Levity with Lifters

Claims of anti-gravity keep popping up all the time—it seems that nothing will keep them down. Robert L. Park exposed certain large aerospace companies' flirtation with the so-called "Podkletnov gravity shield" (SI November/December 2002, p. 7), which has unfortunately not yet resulted in a gravity-shielded airliner. But according to a growing number of enthusiasts, "lifters" can use electric charges to cancel gravity—and they give detailed instructions so that you can build one of them in your own home! (See http://groups.yahoo.com/group/americanantigravity/files/How-To-Documents/.)

The leading promoter of "lifter technology" is the appropriately named *American Antigravity* (*www.americanantigravity.com*). The Web site is filled with pictures of actual "lifters" in flight. A "lifter" is a simple triangular device made of lightweight balsawood containing wires and aluminum foil that are charged with high voltage, acting as an electric capacitor. "The Lifter utilizes the aluminum-foil skirt as the negatively-charged capacitive plate, which has a very large surface area on which to store charge compared to the corona-wire. The difference in size between these two capacitive surfaces means that the net-directional motive force should push from the larger plate towards the smaller plate—in the case of the Lifter, pushing the apparatus upward, and off the testing surface." So says the Lifter FAQ (Frequently Asked Questions) section on American Antigravity's Yahoo discussion group.

Now, lots of devices contain electrical capacitors, but nobody expects to see them rising into the air. Ah, but you are forgetting about the "Biefeld-Brown effect," named for its supposed discoverers Alfred Biefeld and T. Townsend Brown, who founded the once-influential UFO group NICAP. (If you want to know more about Brown and his experiments, there's a whole chapter about him in *The Philadelphia Experiment: Project Invisibility* by William L. Moore and Charles Berlitz.) According to the FAQ, "The Biefeld-Brown effect has been described as a net-directional motive force exerted on a capacitor when a high-voltage charge is applied. . . . The Biefeld-Brown effect has traditionally been neglected in physics textbooks because it was not well understood and many researchers and physicists weren't even sure if it existed. Newer text-books may well contain information on the Biefeld-Brown effect, especially now that NASA and other well-respected scientific authorities have experimented with it." (If you purchase a physics textbook that does describe this supposed "effect," I recommend that you return it as defective.)

However, it is indisputable that the "lifters" really *are* rising into the air. The so-called "lifter effect" can be repeated on demand, and does not conceal itself from scrutiny by skeptics or hide from cameras and videos, as do most alleged "unknown phenomena." So an explanation of some kind is clearly warranted.

The lifters do indeed fly, using the little-known phenomenon of *ion wind*.

Actually, the explanation is not difficult to find: the lifters do indeed fly, using the little-known phenomenon of *ion wind*. Highly electrically charged plates will bleed some of their charge into nearby air molecules, causing them to become ionized. As these ions rush toward the nearby oppositely charged plate, they run into other molecules in their path, setting up a wind effect. If

Robert Sheaffer's World Wide Web page for UFOs and other skeptical subjects is at www.debunker.com.

the device is light enough and its electric charge is sufficiently strong, it will rise into the air for the same reason that a helicopter rises from the downward wind created by its rotating blades. However, the "lifter" will remain aloft only so long as it has enough charge to keep the ion wind blowing—and it must be connected by wires to a bulky power source that remains on the ground! Break the ion wind, and the "Biefeld-Brown effect" vanishes. Even NASA's "Breakthrough Propulsion Physics" group, whose mission seems to be a quest for the science fiction Holy Grail of "warp drives," includes "lifters" and other "electrogravitic" anti-gravity devices on its Web site under "common errors" (www.grc.nasa.gov/WWW/bpp/ComnErr.html): "Even in a vacuum, there can still be enough ion motion or corona discharge to cause counter forces. If the devices were operating by something other than ion wind, then such devices would appear to violate 'Conservation of Momentum,' a basic law of known physics."

American Antigravity concedes to its critics, "Although ion-wind does undoubtedly provide some motive-force on our test-apparatus, the substantial body of evidence at this time indicates that ion-wind could not provide the necessary force that has been measured on the Lifter and related technologies." If they are correct, we'll have to toss all our old physics books into the trash—but don't hold your breath waiting for Biefeld and Brown to replace Newton.

* * *

The Science Fiction Channel certainly lived up to its name with its supposed documentary *The Roswell Crash—Startling New Evidence*, which premiered on November 22, 2002 (see Dave Thomas's report in this issue, page 16). Prior to the broadcast, network representatives were promising it contains a "smoking gun," although after seeing the show the only thing smoking seemed to have been the show's producers. Shovels in hand at the supposed Roswell "crash site," (actually, one of several alleged sites), the researchers had found *something*, they tantalizingly hinted. That something turned out to be nothing more than evidence of a furrow in the ground, which might have been caused by an alien crash—or a burrowing animal. But the "smoking gun" was actually nothing more than researcher David Rudiak's earlier claim to be able to read about "victims" of a saucer crash in a blurry news photo of General Ramey holding a memo while reciting the supposed Roswell "cover story" about a balloon (see www.roswellproof.homestead.com). In the most shameless example of TV hucksterism since Geraldo Rivera's prime-time excavation of what he called "Al Capone's vault" uncovered precisely nothing, *The Roswell Crash* ended by ostentatiously carrying *bags of dirt* under heavy armed guard to be placed in a bank vault, because nobody had proven that they did not contain microscopic extraterrestrial artifacts.

The other, more famous UFO-related programming on that channel has been Steven Spielberg's appropriately-named big-budget mega-series, *Taken*. While the series is admittedly fictional and hence beyond criticism on factual matters, it purports to be based upon real-life incidents. Indeed, the Science Fiction Channel has set up a "UFOlogy Resource Center" on its Web site at www.scifi.com/ufo, where the fictional *Taken* and purportedly factual material mingle freely. As the old adage warns: *don't get "Taken"!*

As for the "serious" Roswell evidence: the Center for UFO Studies (CUFOS), which purports to do scientific research on the subject (and is also reported to be nearing financial insolvency), has recently acknowledged—with admirable courage—that one of the most famous and credible Roswell witnesses appears to have been lying all along. The late Frank Kaufmann claimed to have served in military intelligence at Roswell in 1947, allegedly working on the retrieval of dead aliens and UFO wreckage (see www.cufos.org/FrankKaufmannExposed.pdf). His claims were widely believed by UFOlogists, in spite of certain difficulties that they posed: his name did not appear in the base yearbook for 1947, and some of his statements contradicted other supposed "known facts" about the alleged crash, such as the date. Still, Kaufmann spoke convincingly, had documents to support his tale, and seemed to supply so many credible facts about the "crash" that UFOlogists found it impossible to ignore his account. The pro-Roswell researcher Kevin Randle wrote, "It seemed that every time we began to doubt, or ask difficult questions, Kaufmann would provide another a little bit of documentation along with broad hints that he had much more. He said, repeatedly, when the time came, he had the documents to prove what he said. . . . Kaufmann died in February, 2001, without ever been proved [*sic*] a liar and a fraud."

The proof, however, was not long in coming. After Kaufmann's death, CUFOS Scientific Director Dr. Mark Rodigher and two of his colleagues met with Kaufmann's widow to attempt to secure whatever additional documentation he might have had concerning the alleged UFO crash. What they found was truly amazing, beyond what any of them had expected. They found Kaufmann's true, undoctored military record that, unlike the copy he showed them, revealed he had never worked in intelligence. "To put it quite plainly, Frank Kaufmann created an altered version of an official document to present a false version of his military career consistent with his claims about his involvement with the events at Roswell. His supposed work in intelligence was used to explain how he came to be so knowledgeable about what crashed at Roswell and the subsequent military cover-up," Rodigher writes. Another document, a memo purporting to show Kaufmann's involvement in a "Flying Disk" recovery team, was dated July 25, 1947, signed by Major Lester Garrigues. Rodigher determined that Garrigues was still living, and got in contact with him. Garrigues not only stated that he had already been transferred from Roswell to an overseas assignment on the date in question, but produced documentation to prove it. Worst of all, it was determined that Kaufmann owned an old typewriter whose typeface was an exact

LEVITY WITH LIFTERS
Continued on page 36

William S. Marriott's Gambols with the Ghosts

"Is Spiritualism a fraud? Are the spirit-rappings and the spirit-forms of the séance, the prophecies of the palmist and the clairvoyant, the visions of the trance mediums, genuine evidence of a spirit-world, or are they mere catchpenny tricks, engineered by charlatans to charm money from the pockets of the credulous?"

These are the questions by which the editor of *Pearson's Magazine* introduced, in March 1910, a series of articles investigating Spiritualism, "in order that readers of *Pearson's Magazine* may judge for themselves the pros and cons of this tremendously important subject. If Spiritualism is genuine, it ought to be a vital factor in the lives of us all: if false, then it and its high priests should be ruthlessly exposed and believers in it disillusioned of a faith that is altogether vain."

On such a quest, the editor declared of having been "fortunate in securing the co-operation of Mr. William Marriott, who has made a life-long study of the occult."

Some readers of this magazine may be familiar with the name of Marriott, however it is very likely that the majority has never heard of him. This is quite unfortunate, since Marriott proved to be a very capable magician and skeptical investigator of psychic claims well before Houdini turned to the same subject. The Spiritualist journal *Light*, the then-official organ of the London Spiritualist Alliance, called him "the best exponent of the theory of fraud in Spiritualism in this country."

Information on him, however, is quite sparse and hard to find. For this reason I would be very grateful to any reader who could provide additional details on his life. This, then, is some of what is known.

William Marriott shows how to fake the materialization of ghosts with props bought from the Gambols with the Ghosts catalogue.

Gambols with the Ghosts

William S. Marriott, a likeable fellow with a pair of well-waxed moustaches, was a British professional magician who performed under the pseudonym of "Dr. Wilmar." One of his best known illusions was known as "Dr. Wilmar's Spirit Paintings" and consisted in the production of apparently paranormal paintings, duplicating the claimed psychic phenomena of the Chicago mediums the Bangs sisters (Nickell 2000). According to writer Leslie A. Shepard, author of *Encyclopedia of Occultism and Parapsychology* (1991), this illusion "so impressed a fellow magician P. T. Selbit that he agreed to pay Marriott a weekly royalty for the use of the illusion." However, Marriott himself was not entirely straightforward in claiming rights on the illusion, since he had obtained the secret from David P. Abbot, an amateur magician. When Selbit presented the illusion at the Orpheum Theatre in Omaha in 1911, Abbott saw the show and visited Selbit backstage, when he learned that Selbit had already paid Marriott some $10,000 in royalties!"

One of his first valuable scoops consisted in locating and publicizing a rare copy of *Gambols With the Ghosts: Mind Reading, Spiritualistic Effects, Mental and Psychical Phenomena and Horoscopy*, a secret catalog of spiritualistic paraphernalia and tricks then circulating among mediums. The catalog was issued in 1901 by Ralph E. Sylvestre of

Massimo Polidoro is an investigator of the paranormal, author, lecturer, and co-founder and head of CICAP, the Italian skeptics group.

Chicago and was designed for private circulation among mediums, on the understanding that it would be returned to Sylvestre when tricks had been selected from it.

The catalog had an introductory note which stated: "Our experience during the past thirty years in supplying mediums and others with the peculiar effects in this line enable us to place before you only those which are practical and of use, nothing that you have to experiment with. We wish you to thoroughly appreciate that, while we do not, for obvious reasons, mention the names of our clients and their work (they being kept in strict confidence, the same as a physician treats his patients), we can furnish you with the explanation and, where necessary, the material for the production of any known public 'tests' or 'phenomena' not mentioned in this, our latest list. You are aware that our effects are being used by nearly all prominent mediums of the entire world."

This notorious catalog (a copy of which is still preserved in the Harry Price Library of Magical Literature at the University of London) included equipment for slate-writing, self-playing guitars, self-rapping tables, materializations, and a "Complete Spiritualistic Séance." Marriott obtained a number of these illusions and had himself photographed posing with them.

A Spirit on My Knees

In 1909 Marriott was approached by *Pearson's Magazine* in order to conduct, on behalf of the magazine, a series of investigations on mediums, clairvoyants, and healers the results of which was afterwards published, in 1910, in four issues of the magazine. All of the articles are wonderful exposés of several then (and still now!) popular fads.

In "The Realities of the Séance!," the first installment of the series, Marriott takes aim at Spiritualistic séances and, on the basis of his experiences, writes:

> At many of the séances I was particularly struck by this fact. A very large proportion of the regular clientele of the mediums was invariably composed, as one could judge by the questions asked, and by their sombre dress of people who had recently suffered bereavement. It is on emotions and affections that ought to be sacred that the mediums trade, holding out the hope of possible communication with the departed friend or relative. I believe that a great proportion of conversions to Spiritualism are traceable to undue influence used at times like these; and I am certain that this factor operates very largely to make the medium's profession as profitable as it often undoubtedly is; for, while the ordinary séance fee may be anything from half-a-crown to half-a-guinea, cases have come under my notice of mediums extorting considerable sums by foisting alleged messages from the other world on credulous people. In cases of this sort, of course, the mediums are bringing themselves well within reach of the arm of the law, but the cases where evidence is obtainable are unfortunately few.

Gambols with the Ghosts: a secret fake catalogue for fake mediums.

He records some hilarious episodes. At one séance the medium took a position inside a curtained enclosure, the so-called "spirit cabinet," and the gaslight was put out. After a while the curtain parted and a stately form emerged from the cabinet. He was partially luminous, and carried a luminous globe in his hand which he held near the face to make it more visible. The sitters recognized him as "King Draco." He gave a gracious inclination of his head, moved his hands as if to bless, and retired into the cabinet. I will let Marriott continue the story:

> This should have closed the séance. Tonight an unrehearsed effect was in store for the believers. As the form entered the cabinet, he sat down on what he thought was the settee. It happened to be my knees. I had quickly slipped into the curtained inclosure and was sitting, waiting for him to come back. As my arms went around him he gave a yell followed by language which I will not repeat. My friend had the light up in a moment. And there for the faithful was the edifying sight of the medium, clothed in flimsy white draperies, struggling in the arms of myself!

Marriott then went on detailing how the various effects seen at the séance had been accomplished by trickery. On visiting the house the following day, the magician found that the birds had flown. The medium had vanished into thin air; though, as Marriott later found, "they contrived to keep in touch with some of the circle they had gathered round them, who still, strangest of all, maintained their faith in these incapable charlatans."

However, as Marriott himself observed, true believers can't be shaken in their dearly held beliefs: "Only the other day," the magician observed, "I was talking to a prominent Spiritualist, whose belief is absolutely fixed; and, in reply to all my arguments and demonstrations, he merely shook his head, and, with a smile, observed: 'Ah, my friend, you haven't seen what I have seen.' He was wrong. Fortunately, I had seen very much more than he had seen; and in that fact lies the whole explanation of one man's belief and another man's disbelief—one sees too little; one too much."

Embracing a Ghost

One of the things that most impressed Marriott during his investigation of psychic matters was the fact that illustrious scientists were ready to stake their reputation in favor of some badly observed demonstration by a medium. But, he advised, "scientists, however eminent, are emphatically not the people to investigate these matters." Being a magician

himself, he knew perfectly well that a physicist is no match for a competent trickster: "The scientist who sits where he is told to sit and looks where he is told to look is the ideal subject for the wiles of the conjuror or the medium; and before him effects can be brought off that would be impossible before an audience of schoolboys."

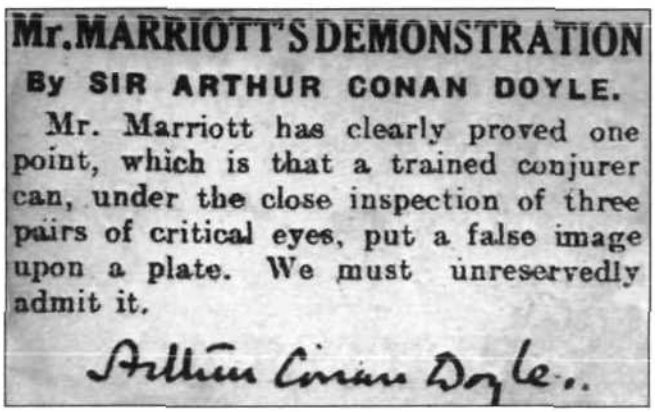
To illustrate this fact, Marriott describes the experiments conducted by physicist William Crookes on famous mediums and observes: "Brilliant as he is in investigations where chemical precision and insight only are required, he proved himself totally unable to make any allowance for the human equation."

Crookes's experiments with the medium Florence Cook, who claimed to be able to "materialize" a spirit called Katie King, illustrate this fact. She was photographed on several occasions, and Sir William Crookes wrote at the time: "But photography is as inadequate to depict the perfect beauty of Katie's face as words are powerless to describe her charms of manner." And he proceeds to quote:

> Round her she made an atmosphere of life;
> The very air seemed lighter from her eyes,
> They were so soft, and beautiful, and rife
> With all we can imagine of the skies;
> Her overpowering presence made you feel
> It would not be idolatry to kneel.

Marriott was quite impressed: "In view of this panegyric, one cannot be surprised at the following naïve account of the wonderful séance, found absolutely convincing by Sir William Crookes," who wrote as follows: "Katie never appeared to greater perfection, and for nearly two hours she walked about the room, conversing familiarly with those present. On several occasions she took my arm when walking, and the impression conveyed to my mind that it was a living woman by my side, instead of a visitor from the other world, was so strong that . . . I asked her permission to clasp her in my arms. Permission was graciously given, and I accordingly did—well, as any gentleman would do under the circumstances." Exclamation marks, italics and all the stereotyped forms of wonder would be wasted on this amazing revelation. "Sir William, after walking and talking with a young woman for two hours; after holding her in his arms and presumably kissing her; after emphasizing the strength of his impression that she was a living woman, still prefers to believe, not that she was a mundane being in collusion with the medium, but that she was—a spirit!"

A fake spirit picture, taken by William Marriott, showing Arthur Conan Doyle with some of his beloved fairies.



Mr. MARRIOTT'S DEMONSTRATION

By SIR ARTHUR CONAN DOYLE.

Mr. Marriott has clearly proved one point, which is that a trained conjurer can, under the close inspection of three pairs of critical eyes, put a false image upon a plate. We must unreservedly admit it.

Arthur Conan Doyle.

A billet that Conan Doyle had to sign when he realized that he had been unable to catch Marriott in the act of faking the spirit picture.

Catching the Medium's Foot

In the last article for *Pearson's Magazine*, Marriott commented on the controversial Italian medium Eusapia Palladino: "More has been written about her and her phenomena than about any other medium. She has been detected in trickery again and again, but she has undoubtedly succeeded in mystifying quite a large number of scientific men."

In his paper Marriott excluded any interest in going after Eusapia: "I am constantly being told that I really ought, in the interests of truth, to go out to investigate this woman's phenomena. I certainly do not propose to waste months or even weeks on a journey to add to the exposure of this fraud, whether in Italy or in America."

However, only a few months after the publication of these words, Marriott was well on his way to Naples to sit with Palladino.

It had happened that Marriott's good friend, psychic researcher Everard Feilding, had persuaded him to change his mind. Feilding, then Honorary Secretary of the Society for Psychical Research, had sat with Eusapia in 1908 and, along with his colleagues, reached the conclusion that "some force was in play which was beyond the reach of ordinary control, and beyond the skill of the most skilled conjurer" (Feilding, Baggally, and Carrington 1909; readers interested in a critical examination of this famous paper, also known as the "Feilding Report," can find a detailed examination of it in my upcoming book *Secrets of the Psychics*).

However, in 1909 and 1910, Eusapia had been caught cheating in the United States. This is how Marriott tells the story: "On this occasion, Mr. Hugo Munsterberg, an American investigator, introduced a man secretly into the cabinet behind Eusapia's chair. From this cabinet various objects are brought forth at her séances without any apparent intervention on her part, this being the 'evidence'—remarkable evidence, indeed—of the truth of Spiritualism, which the medium affords. When the séance had commenced, this man found

Eusapia stretching one of her legs out backwards past the side of her chair into the cabinet, and groping with her toes for the guitar lying there ready to be produced by 'spirit' agency. He naturally seized hold of her foot, Eusapia screamed wildly, and the séance broke up in confusion."

Feilding, convinced that in 1908 he had witnessed real phenomena, believed that Eusapia resorted to fraud only to supplement her genuine powers, and so decided to return to Naples to verify his beliefs. He wanted to be sure, however, and that's why he insisted in having Marriott as his partner in this investigation.

The attempt was a failure; Eusapia systematically cheated as she had done in the United States, and as Feilding himself expressed it, "Everything this time was different." The verdict on the five sittings (Marriott was present at the three last) was that they were, "in the opinion of all those present unquestionably mainly, and in the opinion of Mr Marriott wholly, fraudulent" (Feilding 1911).

Conan Doyle Admits Defeat

Marriott, along with psychic researcher Harry Price and Houdini, was also involved in the Crewe Circle drama (Polidoro 2001). In 1921 a journalist, James Douglas, had a photo of himself taken by medium William Hope, of the Crewe Circle mediumistic group, that, when developed, showed the presence of a spirit extra. Douglas was so impressed by the phenomenon that he issued a public challenge to anyone who could duplicate the feat without using psychic powers. Marriott accepted the challenge and performed not only in front of Douglas but of Conan Doyle and Everard Feilding as well. He produced a picture of Douglas and Doyle with a young woman and a picture of Doyle with little fairies dancing in front of him. He then explained in detail how he had tricked them and Doyle felt compelled to write a public statement: "Mr. Marriott has clearly proved one point, which is that a trained conjurer can, under the close inspection of three pairs of critical eyes, put a false image upon a plate. We must unreservedly admit it."

Marriott had not demonstrated that Hope was a fake but had shown that what had been termed by believers "impossible" to reproduce by normal means could actually be done by a clever magician. Contrary to Houdini, who offered money to anyone who could perform a psychic feat that he could not duplicate, Marriott simply showed that alternative explanations to apparent miracles existed and then invited the open-minded observers to decide for themselves which explanation was the more probable.

"If I am one of the 'scoffers'," wrote Marriott who was described by Harry Price as "happily still living" in 1942, "it is not because of any original bias, but because of the arrant humbug, cheap trickery, and pathetic self-delusion that I have encountered at every point of my investigations of Spiritualism, and I combat the teachings of Sir Oliver Lodge and his co-believers because I believe them to be in defiance of the soundest of all laws—those of common sense and human experience."

Acknowledgments

I wish to thank Hilary Evans, owner with his family of the singularly precious Mary Evans Picture Library in London (www.mepl.co.uk) for kindly passing along some interesting material on William Marriott.

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LEVITY WITH LIFTERS

From page 32

match to that on three alleged Roswell documents. Rodigher concludes, "Given all this evidence of counterfeit documents, we can have no confidence in any details of Kaufmann's testimony, even though he certainly was in Roswell in 1947 and worked at the base (though in the personnel office, not intelligence). We can speculate on his motives and why he deceived investigators, but that will probably be of little use today. The critical point is that we have determined the validity of Kaufmann's testimony, and can now discard it as we seek to establish what exactly did, and did not, occur at Roswell in July 1947."

The problem for the Roswell promoters is, however, that with the credibility of "crash witness" Frank Kaufmann's testimony now refuted, as previously was that of star "crash witnesses" Jim Ragsdale, Gerald Anderson, and Glen Dennis, little or nothing remains of so-called "crash testimony." And Roswell critic Karl Pflock has recently noted that if Kaufmann has not been telling the truth, then it becomes very difficult to believe the story told by Walter Haut, founder of the Roswell UFO Museum. Haut, the Roswell Army Air Field publicity officer who in 1947 issued the famous press release stating that they had recovered the debris of a flying disk, would have been in a position to know that Kaufmann had been lying about working in "army intelligence"—yet supported his story wholeheartedly.

But like Charlie Brown who can always be persuaded that *this time* Lucy will not pull the football away just as he goes to kick it, "serious UFOlogists" will never wake up to the reality that their dreamed-of Roswell Field Goal is just an illusion. And even in the unlikely case that CUFOS and certain other major UFO organizations were finally persuaded to abandon belief in the alleged Roswell crash, the story would still live forever in the minds of the public, thanks now to Steven Spielberg and many others. Once a story of this magnitude plants itself in the popular imagination, nothing will ever lay it to rest. □

The Blank Slate

The Modern Denial of Human Nature

Many intellectuals and social critics have still not moved beyond the simplistic dichotomy between heredity and environment to acknowledge that all behavior comes out of an interaction between the two. The author argues not that genes are everything and culture is nothing—no one believes that—but explores why the extreme position (that culture is everything) is so often seen as moderate, and the moderate position is seen as extreme.

STEVEN PINKER

"Not *another* book on nature and nurture! Are there really people out there who still believe that the mind is a blank slate? Isn't it obvious to anyone with more than one child, to anyone who has been in a heterosexual relationship, or to anyone who has noticed that children learn language but house pets don't, that people are born with certain talents and temperaments? Haven't we all moved beyond the simplistic dichotomy between heredity and environment and realized that all behavior comes out of an interaction between the two?"

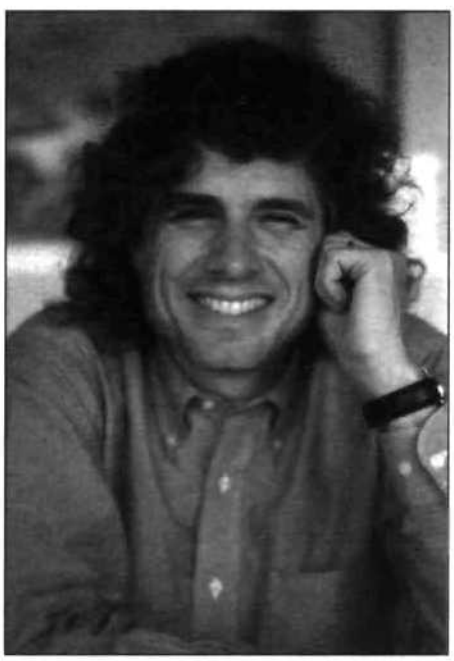
This is the kind of reaction I got from colleagues when I explained my plans for my new book, *The Blank Slate: The Modern Denial of Human Nature.* At first glance the reaction

is not unreasonable. Maybe nature versus nurture *is* a dead issue. Anyone familiar with current writings on mind and behavior has seen claims to the middle ground like these:

> If the reader is now convinced that either the genetic or environmental explanation has won out to the exclusion of the other, we have not done a sufficiently good job of presenting one side or the other. It seems highly likely to us that both genes and environment have something to do with this issue. What might the mix be? We are resolutely agnostic on that issue; as far as we can determine, the evidence does not yet justify an estimate.

> This is not going to be one of those books that says everything is genetic: it isn't. The environment is just as important as the genes. The things children experience while they are growing up are just as important as the things they are born with.

> Even when a behavior is heritable, an individual's behavior is still a product of development, and thus it has a causal environmental component. . . . The modern understanding of how phenotypes are inherited through the replication of both genetic and environmental conditions suggests that . . . cultural traditions—behaviors copied by children from their parents—are likely to be crucial.



Steven Pinker

If you think these are innocuous compromises that show that everyone has outgrown the nature-nurture dichotomy, think again. The quotations come, in fact, from three of the most incendiary books of the last decade. The first is from *The Bell Curve* by Richard Herrnstein and Charles Murray (1994, p. 311), who argue that the difference in average IQ scores between American blacks and American whites has both genetic and environmental causes. The second is from *The Nurture Assumption* by Judith Rich Harris (1998, p. 2), who argues that children's personalities are shaped by their genes as well as by their environments, so similarities between children and their parents may come from their shared genes and not just from the effects of parenting. The third is from *A Natural History of Rape* by Randy Thornhill and Craig Palmer (2001, p. 176, quotation modified to make it gender neutral), who argue that rape is not simply a product of culture but also has roots in the nature of men's sexuality. For invoking nurture *and* nature, not nurture alone, these authors have been picketed, shouted down, subjected to searing invective in the press, even denounced in Congress. Others expressing such opinions have been censored, assaulted, or threatened with criminal prosecution.[1]

The idea that nature and nurture interact to shape some part of the mind might turn out to be wrong, but it is *not* wishy-washy or unexceptionable, even in the twenty-first century, thousands of years after the issue was framed. When it comes to explaining human thought and behavior, the possibility that heredity plays any role at all still has the power to shock. To acknowledge human nature, many think, is to endorse racism, sexism, war, greed, genocide, nihilism, reactionary politics, and neglect of children and the disadvantaged. Any claim that the mind has an innate organization strikes people not as a hypothesis that might be incorrect but as a thought it is immoral to think.

The Blank Slate is about the moral, emotional, and political colorings of the concept of human nature in modern life. I retrace the history that led people to see human nature as a dangerous idea, and I try to unsnarl the moral and political rat's nests that have entangled the idea along the way. Though no book on human nature can hope to be uncontroversial, I did not write it to be yet another "explosive" book, as dust jackets tend to say. I am not, as many people assume, countering an extreme "nurture" position with an extreme "nature" position, with the truth lying somewhere in between. In some cases, an extreme environmentalist explanation is correct: which language you speak is an obvious example, and differences among races and ethnic groups in test scores may be another. In other cases, such as some inherited neurological disorders, an extreme hereditarian explanation is correct. In most cases the correct explanation will invoke a complex interaction between heredity and environment: culture is crucial, but culture could not exist without mental faculties that allow humans to create and learn culture to begin with. My goal in the book is not to argue that genes are everything and culture is nothing—no one believes that—but to explore why the extreme position (that culture is everything) is so often seen as moderate, and the moderate position is seen as extreme.

Nor does acknowledging human nature have the political implications so many fear. It does not, for example, require one to abandon feminism, or to accept current levels of inequality or violence, or to treat morality as a fiction. For the most part I try not to advocate particular policies or to advance the agenda of the political left or right. I believe that controversies about policy almost always involve tradeoffs between competing values, and that science is equipped to identify the tradeoffs but not to resolve them. Many of these tradeoffs, I

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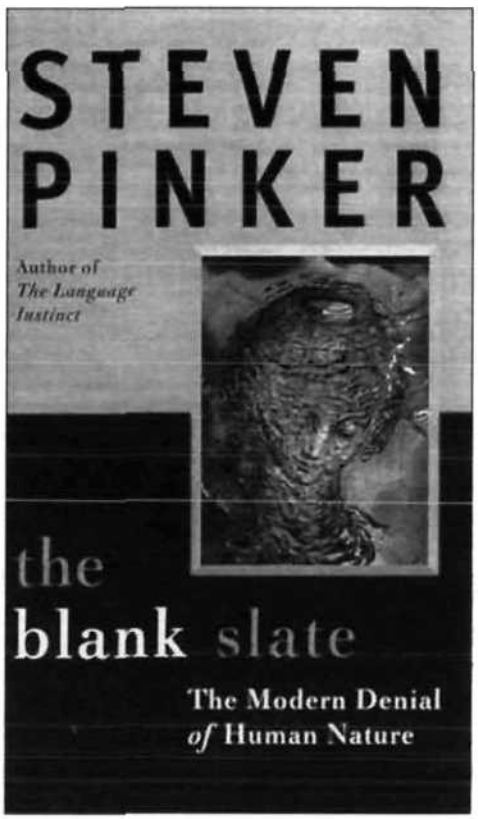
show, arise from features of human nature, and by clarifying them I hope to make our collective choices, whatever they are, better informed. If I am an advocate, it is for discoveries about human nature that have been ignored or suppressed in modern discussions of human affairs.

Why is it important to sort this all out? The refusal to acknowledge human nature is like the Victorians' embarrassment about sex, only worse: it distorts our science and scholarship, our public discourse, and our day-to-day lives. Logicians tell us that a single contradiction can corrupt a set of statements and allow falsehoods to proliferate through it. The dogma that human nature does not exist, in the face of evidence from science and common sense that it does, is just such a corrupting influence.



First, the doctrine that the mind is a blank slate has distorted the study of human beings, and thus the public and private decisions that are guided by that research. Many policies on parenting, for example, are inspired by research that finds a correlation between the behavior of parents and the behavior of children. Loving parents have confident children, authoritative parents (neither too permissive nor too punitive) have well-behaved children, parents who talk to their children have children with better language skills, and so on. Everyone concludes that to grow the best children, parents must be loving, authoritative, and talkative, and if children don't turn out well it must be the parents' fault. But the conclusions depend on the belief that children are blank slates. Parents, remember, provide their children with genes, not just a home environment. The correlations between parents and children may be telling us only that the same genes that make adults loving, authoritative, and talkative make their children self-confident, well-behaved, and articulate. Until the studies are redone with adopted children (who get only their environment, not their genes, from their parents), the data are compatible with the possibility that genes make all the difference, the possibility that parenting makes all the difference, or anything in between. Yet in almost every instance, the most extreme position—that parents are everything—is the only one researchers entertain.

The taboo on human nature has not just put blinkers on researchers but turned any discussion of it into a heresy that must be stamped out. Many writers are so desperate to discredit any suggestion of an innate human constitution that they have thrown logic and civility out the window. Elementary distinctions—"some" versus "all," "probable" versus "always," "is" versus "ought"—are eagerly flouted to paint human nature as an extremist doctrine and thereby steer readers away from it. The analysis of ideas is commonly replaced by political smears and personal attacks. This poisoning of the intellectual atmosphere has left us unequipped to analyze pressing issues about human nature just as new scientific discoveries are making them acute.

The denial of human nature has spread beyond the academy and has led to a disconnect between intellectual life and common sense. I first had the idea of writing the book when I started a collection of astonishing claims from pundits and social critics about the malleability of the human psyche: that little boys quarrel and fight because they are encouraged to do so; that children enjoy sweets because their parents use them as a reward for eating vegetables; that teenagers get the idea to compete in looks and fashion from spelling bees and academic prizes; that men think the goal of sex is an orgasm because of the way they were socialized.

The problem is not just that these claims are preposterous but that the writers did not acknowledge they were saying things that common sense might call into question. This is the mentality of a cult, in which fantastical beliefs are flaunted as proof of one's piety. That mentality cannot coexist with an esteem for the truth, and I believe it is responsible for some of the unfortunate trends in recent intellectual life. One trend is a stated contempt among many scholars for the concepts of truth, logic, and evidence. Another is a hypocritical divide between what intellectuals say in public and what they really believe. A third is the inevitable reaction: a culture of "politically incorrect" shock jocks who revel in anti-intellectualism and bigotry, emboldened by the knowledge that the intellectual establishment has forfeited claims to credibility in the eyes of the public.

Finally, the denial of human nature has not just corrupted the world of critics and intellectuals but has done harm to the lives of real people. The theory that parents can mold their children like clay has inflicted childrearing regimes on parents that are unnatural and sometimes cruel. It has distorted the choices faced by mothers as they try to balance their lives, and multiplied the anguish of parents whose children haven't turned out the way they hoped. The belief that human tastes are reversible cultural preferences has led social planners to write off people's enjoyment of ornament, natural light, and human scale and force millions of people to live in cement boxes. The romantic notion that all evil is a product of society has justified the release of dangerous psychopaths who promptly murdered innocent people. And the conviction that humanity could be reshaped by massive social engineering projects led to some of the greatest atrocities in history.

Though many of my arguments are coolly analytical—that an acknowledgment of human nature does not, logically speaking, imply the negative outcomes so many people fear—I try not to hide my conviction that they have a positive thrust as well. "Man will become better when you show him what he is like," wrote Chekhov, and so the new sciences of human nature can help lead the way to a realistic, biologically informed humanism. They expose the psychological unity of our species beneath the superficial differences of physical appearance and parochial culture. They make us appreciate the wondrous complexity of the human mind, which we are apt to take for granted precisely because it works so well. They identify the moral intuitions that we can put to work in improving our lot. They promise a naturalness in human relationships, encouraging us to treat people in terms of how they do feel rather than how some theory says they ought to feel. They offer a touchstone by which we can identify suffering and oppression wherever they occur, unmasking the rationalizations of the powerful. They give us a way to see through the designs of self-anointed social reformers who would liberate us from our pleasures. They renew our appreciation for the achievements of democracy and of the rule of law. And they enhance the insights of artists and philosophers who have reflected on the human condition for millennia.

The theory that parents can mold their children like clay has inflicted childrearing regimes on parents that are unnatural and sometimes cruel.

An honest discussion of human nature has never been more timely. Throughout the twentieth century, many intellectuals tried to rest principles of decency on fragile factual claims such as that human beings are biologically indistinguishable, harbor no ignoble motives, and are utterly free in their ability to make choices. These claims are now being called into question by discoveries in the sciences of mind, brain, genes, and evolution. If nothing else, the completion of the Human Genome Project, with its promise of an unprecedented understanding of the genetic roots of the intellect and the emotions, should serve as a wake-up call. The new scientific challenge to the denial of human nature leaves us with a challenge. If we are not to abandon values such as peace and equality, or our commitments to science and truth, then we must pry these values away from claims about our psychological makeup that are vulnerable to being proven false.

My book is for people who wonder where the taboo against human nature came from and who are willing to explore whether the challenges to the taboo are truly dangerous or just unfamiliar. It is for those who are curious about the emerging portrait of our species and curious about the legitimate criticisms of that portrait. It is for those who suspect that the taboo against human nature has left us playing without a full deck as we deal with the pressing issues confronting us. And it is for those who recognize that the sciences of mind, brain, genes, and evolution are permanently changing our view of ourselves and wonder whether the values we hold precious will wither, survive, or (as I argue) be enhanced.

* * *

The Blank Slate was an attractive vision. It promised to make racism, sexism, and class prejudice factually untenable. It appeared to be a bulwark against the kind of thinking that led to ethnic genocide. It aimed to prevent people from slipping into a premature fatalism about preventable social ills. It put a spotlight on the treatment of children, indigenous peoples, and the underclass. The Blank Slate thus became part of a secular faith and appeared to constitute the common decency of our age.

But the Blank Slate had, and has, a dark side. The vacuum that it posited in human nature was eagerly filled by totalitarian regimes, and it did nothing to prevent their genocides. It perverts education, childrearing, and the arts into forms of social engineering. It torments mothers who work outside the home and parents whose children did not turn out as they would have liked. It threatens to outlaw biomedical research that could alleviate human suffering. Its corollary, the Noble Savage, invites contempt for the principles of democracy and of "a government of laws and not of men." It blinds us to our cognitive and moral shortcomings. And in matters of policy it has elevated sappy dogmas above the search for workable solutions.

The Blank Slate is not some ideal that we humans are just too weak to fulfill. No, it is an anti-life, anti-human theoretical abstraction that denies our common humanity, our inherent interests, and our individual preferences. Though it has pretensions of celebrating our potential, it does the opposite, because our potential comes from the combinatorial interplay of wonderfully complex faculties, not from the passive blankness of an empty tablet.

Regardless of its good and bad effects, the Blank Slate is an empirical hypothesis about the functioning of the brain and must be evaluated in terms of whether or not it is true. The modern sciences of mind, brain, genes, and evolution are increasingly showing that it is not true. The result is a rearguard effort to salvage the Blank Slate by disfiguring science and intellectual life: denying the possibility of objectivity and truth, dumbing down issues into dichotomies, replacing facts and logic with political posturing.

The Blank Slate became so entrenched in intellectual life that the prospect of doing without it can be deeply unsettling. In topics from childrearing to sexuality, from natural foods to violence, ideas that seemed immoral even to question turn out to be not just questionable but probably wrong. Even people with no ideological ax to grind can feel a sense of vertigo when they learn of such taboos being broken: "O brave new world that has such people in it!" Is science leading to a place where prejudice

is all right, where children may be neglected, where Machiavellianism is accepted, where inequality and violence are met with resignation, where people are treated like machines?

Not at all! By unhandcuffing widely shared values from moribund factual dogmas, the rationale for those values can only become clearer. We understand *why* we condemn prejudice, cruelty to children, and violence against women, and can focus our efforts on how to implement the goals we value most. We thereby protect those goals against the upheavals of factual understanding that science perennially delivers.

Abandoning the Blank Slate is not as radical as it might first appear. True, it is a revolution in many sectors of modern intellectual life. But except for a few intellectuals who have let their theories get the better of them, it is not a revolution in the world views of most people. I suspect that few people really believe, deep down, that boys and girls are interchangeable, that all differences in intelligence come from the environment, that parents can micromanage the personalities of their children, that humans are born free of selfish tendencies, or that appealing stories, melodies, and faces are arbitrary social constructions. Margaret Mead, an icon of twentieth-century egalitarianism, told her daughter that she credited her own intellectual talent to her genes, and I can confirm that such split personalities are common among academics (Degler 1991, p. 135). Scholars who publicly deny that intelligence is a meaningful concept treat it as anything but meaningless in their professional lives. Those who argue that gender differences are a reversible social construction do not treat them that way in their advice to their daughters, their dealings with the opposite sex, and their unguarded gossip, humor, and reflections on their lives.

Acknowledging human nature does not mean overturning our personal world views, and I would have nothing to suggest as a replacement if it did. It means only taking intellectual life out of its parallel universe and reuniting it with science and, when it is borne out by science, with common sense. The alternative is to make intellectual life increasingly irrelevant to human affairs, to turn intellectuals into hypocrites, and to turn everyone else into anti-intellectuals.

Note

1. Hunt, M. 1999. *The New Know-Nothings: The Political Foes of the Scientific Study of Human Nature.* New Brunswick, N.J.: Transaction Publishers; Kors, A.C., and H.A. Silverglate. 1998. *The Shadow University: The Betrayal of Liberty of America's Campuses.* New York: Free Press; P. Rushton, "The new enemies of evolutionary science," *Liberty,* March 1998, pp. 31–35; "Psychologist Hans Eysenck, Freudian critic, dead at 81," Associated Press, September 8, 1997.

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Omission Neglect

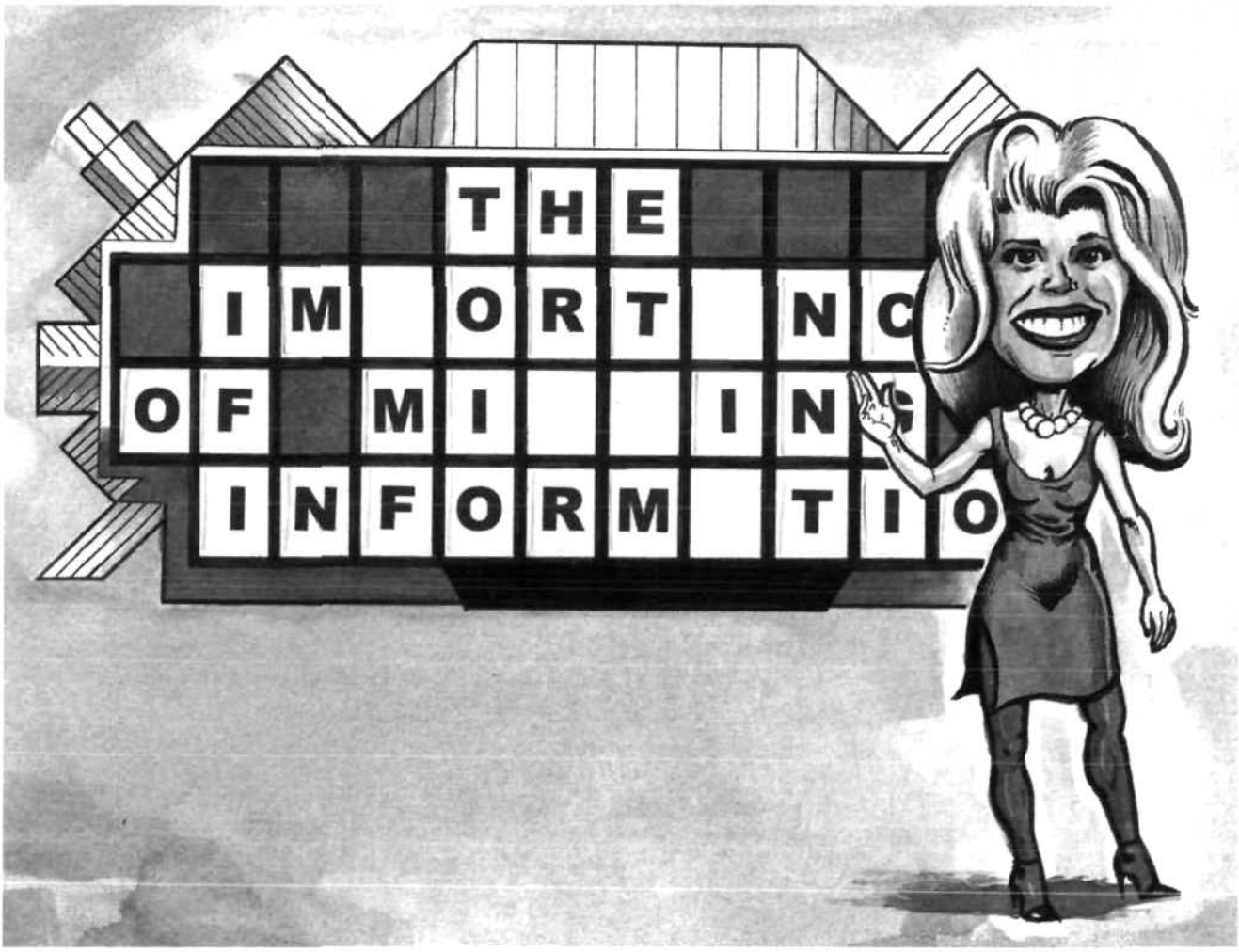
The Importance of Missing Information

Although missing information is often important, people are surprisingly insensitive to omissions (or unmentioned options, features, issues, or possibilities). Neglecting important omissions has serious consequences for decision making.

FRANK R. KARDES and DAVID M. SANBONMATSU

When Sherlock Holmes asked Dr. Watson to consider the previous night's "curious incident" involving a dog, Watson replied that nothing happened (in "The Silver Blaze"). "That was the curious incident," observed Holmes. This clue enabled Holmes to deduce that the murderer must have been someone familiar to the victim's dog because the dog did not bark when the murderer appeared. Most people would miss this important clue because most people, like Watson, pay little attention to non-occurrences (Ross 1977).

Nonevents are important in other situations as well. When forming beliefs about cause and effect, people typically focus on cases in which the cause and the effect co-occur.



Control group cases involving the absence of the cause tend to be neglected even though such cases are essential for establishing causality. In fact, including a control group in experimental design did not gain widespread popularity until the publication of *A System of Logic* by John Stuart Mill in 1887. Scientists failed to recognize the critical importance of a control group until relatively recently in the history of science because even scientists are remarkably insensitive to the absence of a property (such as the absence of a cause).

Another striking example of the difficulty people experience when attempting to think about non-incidents is evident in the history of zero. Numerical symbols first appeared in 3400 B.C. However, no symbol for zero appeared until many centuries later when mathematicians began to use zero as a placeholder to replace blank spaces to distinguish between numbers such as 1, 10, 100, 1000, etc. (Ifrah 1985). Zero served as a mere placeholder and was not used as a symbol for nothingness or the absence of quantity until about 800 A.D. It took early mathematicians thousands of years to develop the crucial concept of zero.

In everyday life, consumers typically make decisions based on thumbnail sketches of products described in advertisements and other biased promotional materials (Kardes 2002). Why are people willing to make decisions based on scraps of information provided by clearly partisan sources? People are accustomed to using whatever evidence is readily available to them—however scant—at the expense of other information that persuaders fail to mention (Sanbonmatsu, Kardes, Houghton, Ho, and Posavac in press). Omission neglect (insensitivity to unmentioned options, features, issues, or possibilities) is particularly problematic given the nature of the world. The amount of information used to describe various alternatives—such as various political candidates, job applicants, defendants, consumer goods, healthcare products, medical procedures, or possible decision outcomes—typically varies dramatically across situations. Reports, speeches, interviews, advertisements, and media coverage provide various

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levels of detail about different alternatives. Some alternatives are discussed at considerable length, while others are described only briefly. To some extent, nearly everything is described in terms of limited, incomplete, or fragmentary evidence.

Belief and Evidence

Research on omission neglect has shown that people often fail to detect the absence of important missing information, and this leads people to form strong beliefs on the basis of weak evidence (Sanbonmatsu et al. 1991, 1992, 1997). Strong beliefs are beliefs that are overly extreme (those that are highly favorable or highly unfavorable when the available evidence is only moderately favorable or moderately unfavorable, respectively) and held with a high degree of confidence. In general, people should form more extreme beliefs when more rather than less information is available (*the set-size effect; see Anderson 1981*). However, when people are insensitive to omissions, people form extreme beliefs regardless of how little is known about a topic (Sanbonmatsu et al. 1991, 1992, 1997, in press).

Consumers' inferences were more extreme and were held with greater confidence when they remembered a little than when they remembered a lot; people are often most confident when they are most wrong.

For example, people should form more favorable evaluations of a camera when the camera performs well on eight attributes as opposed to only four attributes. When consumers are unknowledgeable or moderately knowledgeable about cameras, however, they form equally favorable attitudes toward the target camera regardless of how much or how little information is presented (Sanbonmatsu et al. 1992). Only the small subset of consumers who are highly knowledgeable about cameras form more favorable attitudes when the target camera is described by eight (versus four) favorable attributes.

Similar results are observed in inferential judgments (those that go beyond the information given; see Sanbonmatsu et al. 1991). Consumers received a brief description of a new ten-speed bicycle and were asked to judge its durability even though no information about durability was provided. When consumers inferred durability immediately after reading the description, they realized that no information about durability was available and they formed moderately favorable inferences about durability. However, when consumers inferred durability one week after reading the description, extremely favorable and confidently-held inferences were formed. This result was observed even though memory tests revealed that after the one-week delay people forgot most of the information that had been presented. That is, consumers' inferences were more extreme and were held with greater confidence when they remembered a little than when they remembered a lot (the remembering-less-and-inferring-more effect). In other words, people are often most confident when they are most wrong.

Inferences are also influenced by beliefs about the strength of the relationship between presented and missing information. When presented and missing information are highly related, people can make inferences about unmentioned information based on the presented information. For example, many consumers assume that price and quality are highly related (quality increases as price increases; you get what you pay for). Consequently, consumers infer that a high price signals high quality. However, consumers are unlikely to attempt to form an inference about a missing attribute if they fail to notice that information is missing. When a large amount of information is presented about one product and a small amount is presented for another, consumers are less sensitive to missing information when the product described by the larger amount of information is presented first rather than second (Kardes and Sanbonmatsu 1993). Consequently, people are less likely to form inferences and are more likely to prefer the two products equally when the product described by the larger amount of information is presented first.

Drawing Attention to Nothing

The results of research published by Sanbonmatsu, Kardes, and their colleagues suggest that omission neglect occurs because missing information is not very salient or attention drawing. To the extent that this is true, omission neglect should be reduced when the salience of missing information is enhanced. This can be accomplished by manipulating variables of motivation and context that increase sensitivity to omissions and lead to more appropriate judgments. More moderate judgments are formed when people are sensitive to omissions due to an explicit warning that the given information is incomplete (Sanbonmatsu et al. 1992), due to very high levels of prior knowledge about the target object or issue (Sanbonmatsu et al. 1991, 1992), or due to comparison processes that make it painfully obvious that some objects are described by a large amount of information whereas others are described by a small amount (Sanbonmatsu et al. 1997, in press). Moderate judgments are more accurate than extreme judgments when information is limited (Griffin and Tversky 1992), are more readily updated as new information becomes available (Cialdini, Levy, Herman, and Evenbeck 1973), and are more justifiable to oneself and to others (Lerner and *Tetlock 1999; Shafir, Simonson, and Tversky 1993*).

Although beliefs are generally more reasonable when people are sensitive to omissions, such awareness is very difficult to foster. People frequently and typically neglect omissions. Research on the tendency to learn more quickly when a distinguishing feature or symbol is present versus absent has

shown that people find it very difficult to learn that the absence of a feature is informative (Newman, Wolff, and Hearst 1980). Even when the presence or absence of a feature are equally informative, the relationship between the predictive feature and a desired event (e.g., food, water, positive feedback) is learned much more rapidly when the feature is present as opposed to absent. The feature-positive effect is so ubiquitous that it has been observed for humans, pigeons, rats, cats, and monkeys, and most young children and animals never learn that the absence of a feature is informative (Newman et al. 1980).

Research on the fault-tree effect also shows that it is extremely difficult to make people sensitive to omissions (Russo and Kolzow 1994). A fault tree is a list of possible reasons for system failure (e.g., a list of possible reasons why an automobile will not start or a machine malfunctions). Many managers believe that a fault tree is a useful troubleshooting device that helps busy employees to identify the cause of a problem more quickly. It is easier to consult a list than to think about all of the things that can go wrong from scratch. Fault trees are commonly used to troubleshoot complex systems such as devices used in airplanes and nuclear power plants. However, when using fault trees, people typically underestimate the likelihood that an unmentioned alternative could be the root cause of a problem. This result is observed regardless of how many or how few possibilities are included in the fault tree (analogous to the finding that extreme beliefs are formed regardless of how many or how few attributes are presented in a product description; see Sanbonmatsu et al. 1992).

Missing information is also neglected in the Ellsberg paradox (discovered by the famous economist who advised President Nixon): People prefer to bet on known probabilities rather than on unknown probabilities (Fox and Weber 2002). Most people are indifferent between red and black when betting on whether a red or black marble will be drawn from a jar containing half each red and black marbles. Most people are also indifferent between red and black when betting on whether a red or black marble will be drawn from a jar of red and black marbles with an unknown distribution. When given a choice between the two jars, however, most people prefer to bet on the jar with the 50/50 distribution rather than the jar with the unknown distribution. Just as it is the case that comparative contexts (e.g., judgment contexts involving descriptions of more than one product) increase sensitivity to missing attributes (e.g., Sanbonmatsu et al. 1997, in press), so too it is the case that comparative contexts (e.g., choice contexts involving more than one gamble) increase sensitivity to missing probabilities (Fox and Weber 2002).

Cause and Effect Reasoning

People are insensitive to missing cases (as well as to missing attributes, features, possibilities, and probability distributions) and this makes it difficult to learn the relationship between two variables (e.g., X and Y, cloud seeding and rain, holistic medicine and good health). People often focus on cases involving the presence of both variables and ignore cases involving the absence of one or both variables (for reviews of covariation estimation, see Gilovich 1991, 1997; Nisbett and Ross 1980; Sanbonmatsu, Posavac, Kardes, and Mantel 1998). Statistically, all four cells of the 2 (X present or absent) by 2 (Y present or absent) contingency table are equally important (see table 1). However, most people focus on the X present/Y present cell exclusively. This can lead people to see relationships where none exist. For example, if a large number of people who take holistic medicines enjoy good health (X present/Y present), many people conclude that holistic medicines are beneficial. This conclusion is unwarranted, however, because a large number of people who take holistic medicines do not enjoy good health (X present/Y absent), a large number of people who do not take holistic medicines enjoy good health (X absent/Y present), and a large number of people who do not take holistic medicines do not enjoy good health (X absent/Y absent).

Cause and Effect Reasoning		Good health (presumed effect)	
		Present	Absent
Holistic medicine (presumed cause)	Present	A	B
	Absent	C	D

Table 1. Cause and effect reasoning contingency table. Statistically, all four cells are equally important. Psychologically, people focus mainly on cell A (cause present/effect present). Cases involving the absence of a cause (cells C and D) or the absence of an effect (cells B and D) are often neglected.

When attempting to assess the accuracy of their beliefs, people focus more heavily on the evidence that supports their beliefs than on the evidence that fails to support their beliefs (for reviews of confirmation bias, see Gilovich 1991, 1997; Nisbett and Ross 1980; Sanbonmatsu, Posavac, Kardes, and Mantel 1998). Although this bias is more pronounced when people want to protect their beliefs, it occurs even when people attempt to be objective. Supportive evidence about the occurrence of an expected outcome is attention-drawing and memorable. Unsupportive evidence about the *nonoccurrence* of an expected outcome is ignored or discounted as a fluke. Consequently, people's beliefs tend to be remarkably resilient to evidence, and erroneous beliefs about psychology, business, law, and medicine persevere. For example, many people believe in ESP and subliminal persuasion despite the lack of scientific evidence for these phenomena. Investors continue to believe that they can beat the stock market even though the most sophisticated mathematical models (e.g., nonlinear regression, chaos theory) are unable to do so. Jurors believe that their verdicts are not influenced by inadmissible evidence, despite evidence to the contrary, and medical patients spend millions on useless holistic medicines, Laetrile clinics, psychic surgeons, and faith healers (Gilovich 1991).

People are insensitive to so many different types of

omissions that developing effective debiasing procedures is daunting. However, research on this topic suggests that it might not be necessary to encourage people to think about specific omissions (Sanbonmatsu et al. 1997). Instead, merely increasing people's awareness that *something* is missing, even if they do not know what, can improve judgment and decision making. After reading a large (versus small) amount of information about an irrelevant topic (i.e., soybeans), consumers form more moderate and appropriate evaluations of a briefly described product (i.e., an automobile or camera). Detecting unspecified omissions helps people to recognize that their judgments are based on limited or weak evidence.

The more people focus on the presented information, the more difficult it may be to consider attributes that were not included in a product description.

One way to reduce the degree to which people overestimate the importance of the presented information is to encourage them to consider a wide range of attributes by asking them to evaluate two products described on different attribute dimensions. Another way is to ask people to rank the importance of each attribute in a lengthy list of attributes before asking them to read a brief product description.

To summarize, inappropriately extreme and confidently held judgments are formed when people overestimate the importance of the presented information and underestimate the importance of information that was *not* presented. It is surprising that people focus so readily and so heavily on the presented information, given that the presence or absence of information about an attribute has no influence on the objective importance of the attribute (e.g., miles per gallon is an important attribute even if no information about this attribute is provided for a specific brand). This effect is so strong that the presented information may actually interfere with the ability to think about unmentioned information. The more people focus on the presented information, the more difficult it may be to consider attributes that were not included in a product description.

Our minds may have evolved to process stimuli we encounter, not stimuli we do not encounter. The presence of a predator is a relatively rare event that requires immediate attention and action. By contrast, the absence of a predator is a commonplace event that does not raise any immediate concerns. Because infrequently encountered stimuli are more informative, it is more efficient to focus on stimuli that are encountered rather than on stimuli that are not. Only if a large number of stimulus-outcome associations are learned does it become unnecessary to develop a system that monitors the absence of relationships among stimuli and outcomes (Newman et al. 1980). Consequently, associations among occurrences are learned more easily and rapidly than associations involving non-occurrences.

People are accustomed to making judgments and decisions based on whatever information they happen to encounter. Regardless of how much and what information is used, omission neglect is common because missing information is not salient, people overestimate the importance of readily available information, and presented information interferes with the ability to think about missing information. It is just as important to think critically about what we do *not* know as what we do know.

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Acupuncture, Magic, and Make-Believe

Traditional Chinese acupuncture is an archaic procedure of inserting needles through the skin over imaginary channels in accord with rules developed from pre-scientific superstition and numerological beliefs. New research has replaced this mystical sham medical procedure with a simple evidence-based no-needle treatment that stimulates motor points and nerve junctures and induces gene-expression of neurochemicals and activates brain areas important for healing. This is a scientifically based alternative to the previous metaphysical theories and magical rituals.

GEORGE A. ULETT

In all early cultures around the world, people observed the magic of nature with great awe. They formulated explanations in the form of myths such as the God of Thunder and the Goddess of Lightning. Behavior, including rituals of sacrifice and prayer, was governed by interpretations of such myths formed from the primitive knowledge of the time. Later, as knowledge of the world expanded, myths became scientific theories. But even these theories resemble myths in that they may be only temporary explanations that direct behavior until the theories change, augmented or supplanted by yet more scientific evidence. Persons who, in the face of contradictory scientific facts, continue to base their actions on disproved ancient myths are behaving in a "make-

believe" fashion. Today scientific evidence makes the metaphysical explanations that are the basis of traditional Chinese acupuncture obsolete. The estimated 20,000 acupuncturists in America are therefore practicing a "make believe" kind of medicine. This was the opinion of the American Medical Association quoted in newspapers on August 4, 1974, stating "The AMA Calls Acupuncture Quackery."

In the late 1960s, before acupuncture was introduced in the U.S., I had learned of it on a trip to Japan. Dr. Kodo Senshu, a retired physician, was translating one of my psychiatric texts into Japanese. When I informed him that we in America knew nothing about acupuncture he set about to rectify my ignorance. He demonstrated the technique on my teenage daughter and I returned home with a textbook and a box of needles. In the following months I tried the method on a number of my patients. I discovered what the Chinese had known for centuries, that acupuncture could be of benefit to patients suffering from chronic pain. I was, however, greatly bothered by the pre-scientific explanations of the mystical needle ritual I was using. As a seventy-year member of the International Brotherhood of Magicians, I had long ago learned that behind every event that appears magical there is a string or a mirror.

Early Chinese Acupuncture

My special hobby is Chinese magic and I was eager to look for a scientific explanation of acupuncture. In tracing magic's early roots in China I found a copy of an engraving showing the sorcerer Yu the Great in the pre-Shang court of the Emperor Shun, around 2,400 B.C. I learned that magicians like Yu were shamans. China's first physicians mixed their healing with magic rituals and whatever herbal remedies nature offered. These early shamans were also alchemists and practiced astrology. Yu was an expert in divination, and is depicted predicting the future by scapulomancy (reading the cracks produced by heating an animal's scapula or the carapace of a turtle). He could also prophesy from patterns formed by casting a mixture of long and short yarrow sticks. In later centuries the patterns formed by these sticks were ultimately organized into eight trigram designs of long and short lines. These in turn were doubled and created the sixty-four hexagrams of the *I Ching*, the "Book of Changes," one of the most famous fortune-telling books of all times.

Although it is before recorded history, some believe that Yu the Great was a minister in the court of Huang Ti, the legendary Yellow Emperor, reputedly the father of Chinese medicine. The book bearing his name, the *Huang Ti Nei Ching*, commonly translated as *The Yellow Emperor's Manual of Corporeal Medicine*, has been referred to as "China's Hippocratic Corpus." Its two main sections, the Su Wen (questions and answers about living matter) and the Ling Shu (the vital axis) were not compiled until the early Han Dynasty (200 B.C.). They are in the form of conversations between the emperor and his ministers. While some credit the Yellow Emperor with being the inventor of writing and author of the text, the work appears to be a compilation of ancient superstitions and concepts from numerology gathered by many authors over preceding centuries.

The Yellow Emperor's Classic is a fascinating volume containing the metaphysical theories that serve as the foundation for all of the world's several hundred varieties of acupuncture. Traditional Chinese acupuncture is based on the belief that disease is caused by blockages of *qi*, a mysterious body energy said to travel in imaginary channels known as *meridians*. The concept of such a body of energy is common to many cultures throughout the world. It goes by different names, including *prana*, *spiritus*, and *pneuma*. The Chinese ideogram for *qi* was developed from the pictogram of a pot of boiling rice with the top blown off by rising steam. When I learned of this I thought back to boyhood days of sandlot baseball when our fatigued pitcher was described as "running out of steam." Today it is known that body energy results from inner- and intra-cellular metabolism manifesting in measurable nervous energy.

There are many hypothetical meridians in which *qi* is thought to travel. The major ones are bilaterally paired and twelve in number, corresponding to the twelve months and animals of the Chinese zodiac. They also represent twelve body systems, including a vaguely defined mythical organ called the "triple heater." A minister is said to have told the Yellow Emperor, "On these channels there are 365 *acupoints*, one for each day of the year." These points are thought to be hollow areas, *hsueh*, where *qi* is believed to come to the surface for manipulation to balance the *yin/yang* dualism. Traditionally such manipulation is by needles (acupuncture), finger pressure (acupressure), or heat (moxibustion). The manner of application differs with the need to weaken (sedate) or strengthen (tonify) the body energy.

The early Chinese were primarily agrarian and dependent upon the vagaries of nature. Medicine was a part of religion and philosophy, both of which centered on the theme of oneness with nature. Man is but a microcosm of the major cosmos; what happens in nature happens in man. To understand these older conceptions of Chinese medicine is to recognize this cosmogony of the world. There was no supreme creator; instead the world arose from chaos having been formed by the forces of *yin* and *yang*, darkness and light. This ancient belief was ultimately given form chiefly in Taoism where the number of paired opposites is seemingly endless with examples such as man/woman, black/white, heaven/earth, cold/warm, etc. The need for the physicians to give prime consideration to balancing yin/yang forces in all the body's organs permeates medical thinking. Actions, thoughts, food, and medicines all have their ying/yang attributes.

Among the superstitions of ancient China, numerology plays a major role. Here numbers, in addition to any quantitative or ordinal characteristics, have a special magic meaning. Of all numbers, five is by far the most mystical. An important theory underlying the principles forming the

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ritual practice of traditional acupuncture is commonly known as *wu hing*, or "five element theory." Actually *hing* is better translated as *movement*, so the five elements—earth, fire, wood, metal and water—are usually taught using the term "essences." According to the "rule of correspondences," derived from ancient numerology, the number five is a governing magical number. Each of the five elements corresponds to classifications of body parts: five odors, five tastes, five orifices, five tissues, etc. As man's relation to nature renders him susceptible to diseases according to the weather, seasons of the year must also fall under the rule of five. To solve this dilemma, summer is divided into two parts, "early summer" and "late summer." In this manner numerology strongly determines the ritual application of acupuncture needles.

The Placebo Factor

Traditional acupuncture is done with needles. Needles have a powerful advantage as it is commonly believed that a "shot" is more powerful than a pill. Treatment is effected by a man in a white coat calling himself a "doctor of acupuncture." He inserts needles without pain. His office is adorned with posters of human bodies replete with strange lines and Chinese hieroglyphics. Here, then, are all the ingredients for a strong placebo cure. Many of the treatments of alternative medicine depend upon such placebo action for their healing reputation.

Placebo comes from the Greek, meaning "I shall please" and is created by the patient's belief in the treatment's efficacy. The response is strengthened when the doctor demonstrates his own faith by an air of confidence. Thus placebo is a mind/body phenomenon.

Research reports suggest that the placebo response is actuated by neurochemicals in the brain. It is estimated that 30 to 50 percent of all healing is due to placebo action. Even the drama of sham surgery has, in double-blind studies, been shown to have a powerful pain-modulating action. During the Middle Ages when medicine consisted mainly of witch's brew, civilization survived by placebo action combined with the fact that an estimated eighty percent of all illnesses are self healing.

In 1997 the practice of Chinese needle acupuncture was given strong support from a National Institutes of Health/Office of Alternative Medicine consensus meeting. The studies reviewed were done in the traditional manner, and the committee stressed the need for better controlled investigations. The committee was also aware of the placebo factor, as its report mentions that ". . . so called 'non-specific' effects account for a substantial proportion of its effectiveness and thus should not be casually discounted."

Professor Song Keel Kang of Kung Hee Medical School in Seoul, South Korea, wrote that, "The psychological factor becomes important in methods that rely upon endogenous modulation. But whatever placebo effect acupuncture has must be by means of an underlying physiological mechanism." It is therefore of great importance to examine the scientific evidence for a biological basis of acupuncture.

Acupuncture in America

Early Chinese science was advanced. The Chinese were the first to invent the compass, printing, and gunpowder. But China's isolation impeded incorporation of knowledge from the Industrial Revolution in the West that spawned the roots of scientific medicine. Opium wars with Britain and dissension over port treaties with foreign powers enhanced a xenophobia and stifled advances of modern medicine. Missionaries brought some knowledge of Western medicine to China, and in the late 1800s a modern hospital and medical school were established in Shanghai. In 1882, when the emperor saw the superiority of Western medical techniques, he banned the teaching of acupuncture in the Imperial Medical College. But the triumph of science over sorcery was short lived. China's isolation was intensified by the xenophobic Boxer rebellion, war with Japan, and the Communist revolution. Thus the acupuncture "meridian theory" continued unchanged and a "bamboo curtain" impeded the flow of knowledge between China and the United States (figure 1).

In the 1940s, Chairman Mao faced millions in need of medical care with only a very limited number of Western-trained physicians. He solved the problem by re-establishing traditional Chinese medicine. With the stroke of a pen he set back Chinese medical progress by two thousand years. Teenagers were taken into the Red Guard and given three months of training in herbs, acupuncture, and First Aid. Armed with *The Barefoot Doctor's Manual*, they spread ancient Chinese medicine throughout the country, giving new credence to ancient beliefs that were solidly established in rural areas. Chinese medical schools now taught both modern and traditional medicine.

When President Nixon's delegation returned from their visit to China in 1972, they introduced traditional acupuncture to a U.S. enamored of New Age thinking and alternative medicine. These beliefs from the mysterious Orient came as yet another miracle cure-all. In view of the AMA's negative pronouncement, physicians were reluctant to adopt or study acupuncture. So it was mainly those without medical training who became "acupuncturists." They thus could play at being doctor without the necessity of going to medical school. Dozens of acupuncture seminars offered expensive courses, and most states soon established certification requirements of up to 1,700 hours of training in pre-scientific Chinese metaphysics. Third-party insurers are increasingly paying for needle acupuncture despite its unscientific basis.

Acupuncture Becomes Scientific

In 1972 the University of Missouri received the first National Institutes of Health acupuncture grant. Colleagues and I designed a study to compare acupuncture and hypnosis for modulation of experimental pain. We were able to report that acupuncture was not hypnosis. Most important was our finding that when the needles were stimulated by electricity it significantly increased acupuncture's ability to control pain. Although aware of its placebo effect, we were convinced that

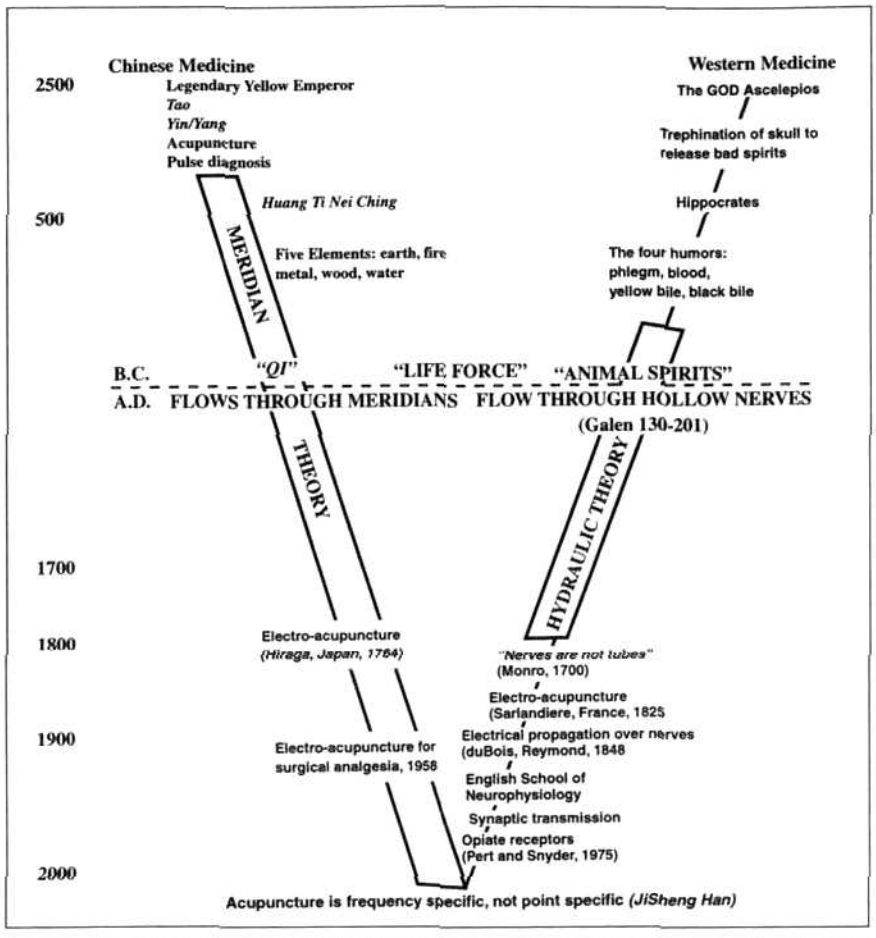

Figure 1. Developing concepts of biological acupuncture and perception of the myths of ancient pre-scientific metaphysical explanations

acupuncture worked by some neuro-physiological mechanism (Ulett and Han 2002). On a trip to China I met Professor JiSheng Han of Beijing Medical University. He showed me that, by transfusion of spinal fluid, he had transferred acupuncture analgesia from a treated to an untreated animal. This proved the neurochemical basis of acupuncture. He then spent thirty years unveiling the biological mechanisms of acupuncture by mapping the anatomical pathways and biochemistry of this ancient practice (Han 1998). He found that with proper electrical stimulation of the nervous system, specific frequencies could effect the gene expression of specific neuropeptides in the central nervous system. Thus he showed that acupuncture could significantly increase the spinal fluid content of substances such as endorphins and dynorphins. These had specific healing actions in the brain and spinal cord. Endorphins, for example, can activate an opioid receptor that is now known to have an important anti-anxiety effect. He also showed that there was a cross-tolerance between acupuncture and morphine in the treatment of drug addiction. Han demonstrated that stimulation could be done with polymer conducting EKG-type pads placed on the surface of the skin over motor points. No "magic needles" were necessary.

By 2001 functional magnetic resonance imaging (fMRI) studies, especially those of Professor Z.H. Cho of the University of California Medical School at Irvine, demonstrated significant supporting evidence of a biological basis for acupuncture. Cho showed that electro-acupuncture stimulation can affect the diencephalic area of the brain, a region that promotes the body's own healing responses. Here sensory stimulation of the *hypothalamus enhances homeostasis* through activating the autonomic nervous system, balancing hormonal regulation by action of the pituitary gland and effecting anti-pain and limbic system responses (Cho, Wong, and Fallon 2001).

Conclusion

Traditional Chinese acupuncture is an archaic procedure in which needles are inserted through the skin over imaginary channels in accord with rules developed from pre-scientific superstition and numerological beliefs. The needles are manipulated to supposedly influence an imaginary body energy whose blockage is presumed to create diseases that are diagnosed and defined in a manner antithetical to modern medical knowledge. New information from research by Chinese scientists has replaced this mystical sham medical procedure with a simple, evidence-based, no-needle treatment. This method stimulates motor points and nerve junctures. Specific electrical currents induce the gene expression of neurochemicals and activate brain areas important for healing. Here then is a scientifically based alternative to the metaphysical theories and magical rituals of traditional Chinese acupuncture.

Western medicine prides itself on being evidence-based. Schools of medicine, nursing, chiropractic, and naturopathy should therefore avoid teaching pre-scientific traditional needle acupuncture to their students. The integration of unproven mystical methods will serve only to contaminate a scientific curriculum with make-believe medicine. Evidence-based neuro-electric stimulation is an effective, simple, no-needle, drug-free method of treatment that can be taught in an hour's time (Ulett and Han 2002). Our own experience and reports from clinics abroad have shown this to be a potent technique giving lasting relief from chronic pain with a reduced dependency upon medication. It has also been found useful for a variety of neurological, psychiatric, and psychosomatic illnesses.

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Walt Whitman
When Science and Mysticism Collide

Whitman was the first important American poet to celebrate science. He rejected the Romantic notion that science despoils the virgin purity of nature and preys on the poetic imagination. But Whitman was a false paladin. He violated the spirit of science the better to gratify his cosmic affirmations and mystical worldview. Despite his putative defense of science, Whitman was imbued with a Romantic mentality.

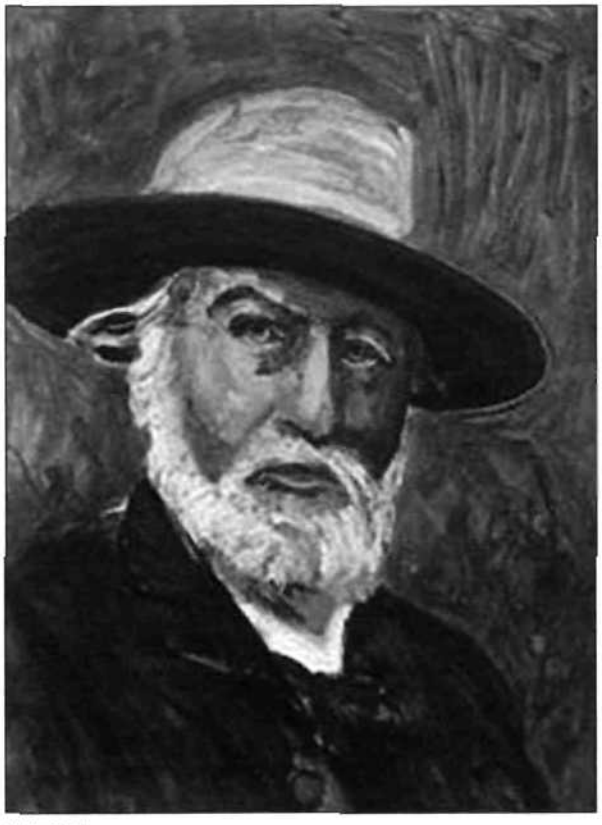
GARY SLOAN

Walt Whitman was the first important American poet to extol science. In 1855, when the first edition of *Leaves of Grass*, his epochal volume, came out, the Romantic aversion to science still chafed poetic sensibilities. Through its invasive procedures, the standard indictment read, science violated Nature's pristine wholeness, disfiguring the beauty of natural forms. "We murder to dissect," carped Wordsworth. Edgar Allan Poe depicted science as a vulture preying on the heart and the imagination. With its voracious appetite for analysis, it eviscerated myth, wonder, spontaneity, reverie, and awe.

Whitman dismissed the charges as anachronistic poppycock. He raised a toast: "Hurrah for positive science! Long

live exact demonstration!" Geologist, chemist, surgeon, mathematician, cartographer, lexicographer, the whole menagerie of exact demonstrators were welcome in his poetic parlor: "Gentlemen, I receive you, and attach and clasp hands with you. Your facts are useful and real." *Useful*, we shall see, was the operative word.

Though short on expertise, Whitman had a wide-ranging interest in contemporary science—astronomy, geology, physics, chemistry, biology, including evolution. He was an avid, if unsystematic, reader of popular books and magazine articles on science. As newspaper editor in the 1840s and 1850s, he supported scientific enterprises. Later, when *The Origin of Species* had become a *cause célèbre*, the Good Grey Poet plumped for Darwinism: "It is needed as a counterpoise to widely prevailing and unspeakably tenacious, enfeebling superstitions. With its advent, the world of erudition, both moral and physical, cannot but be eventually bettered and broadened in its speculations."



Walt Whitman

These superstitions were nourished by ecclesiastical institutions, for which the poet had meager respect. From his father, an admirer of Thomas Paine, Whitman had imbibed anti-clerical sentiments. He scoffed at the disparate creeds of religions, each claiming to see the truth through the colored lenses of its own dogmatism. Though scarcely an agnostic, he liked the brash way Robert Ingersoll and Thomas Huxley twitted the religious establishment: "It does seem," he remarked, "as if Ingersoll and Huxley without any others could unhorse the whole Christian giant." As prophet of pantheistic mysticism, Whitman may have harbored similar aspirations even though he sometimes sounds like a boisterous Jesus: "O despairer, here is my neck, / By God! You shall not go down! Hang your whole weight on me." Whitman thought science could clear the way for spiritual regeneration by softening hidebound creeds, fables, and traditions.

Leaves of Grass bristles with allusions to science. Now, meteorology ("I" is the rain):

> Eternal I rise impalpable out of the land and bottomless sea,
> *Upward to heaven, whence, vaguely formed,*
> altogether changed,
> And yet the same,
> I descend to lave the drouths, atomies, dust layers of the globe.

Now, conservation of energy:

> Myself discharging my excrementitious body to be burned,
> Or rendered to powder, or buried,
> My voided body nothing more to me, returning to the purifications,
> Further offices, eternal uses of the earth.

And stellar life cycles:

> The stars, the terrible perturbations of the suns,
> Swelling, collapsing, ending serving their longer, shorter use.

These lyrical evocations of natural processes show that a scientific outlook needn't stifle the imagination nor swaddle the spirit.

Had Whitman been content to infuse the formulations of scientific discourse with the finer breath of poetry, he would have merited the epithet *Poet of Science*, the title of a study by Whitmanite Joseph Beaver. With a different temperament and background, he might have been a modern Lucretius, the great Roman poet of materialism. As it stands, Beaver's laudatory epithet is deceptive. Despite the hurrahs, Whitman relegated science to the role of data collector for a higher muse. While science was a useful antidote to superstition, it couldn't penetrate the spiritual substratum of reality. Scientific facts, Whitman believed, had esoteric ramifications best elucidated by sages, seers, and philosopher-poets: "The highest and subtlest and broadest truths of modern science wait for their true assignment and last vivid flashes of light through metaphysicians. The poets of the cosmos advance through all interpositions and coverings and stratagems to first principles."

Properly illuminated, the lore of science corroborated Whitman's eclectic mysticism, grounded, he thought, in the first principles. Scientists may have been bemused by his metaphysical extrapolations. Evolution, both cosmic and Darwinian, was constrained by an idiosyncratic anthropic principle:

> My embryo has never been torpid. Nothing could overlay it;
> For it the nebula cohered to an orb, the long slow strata piled to rest it on, vast vegetables gave it sustenance,
> Monstrous sauroids transported it in their mouths and

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deposited it with care.
All forces have been steadily employed to complete and delight me.

Evolution also ratified a quasi-Hegelian dialectic of inexorable spiritual progress, the whole creation spiraling toward an Absolute Idea of immortal love:

All, all for immortality,
Love like the light silently wrapping all,
Nature's amelioration blessing all,
The blossoms, fruits of ages, orchards divine and certain,
Forms, objects, growths, humanities, to spiritual images ripening.

The ceaseless permutations of "atomies" warranted belief in transmigration of souls: "No doubt I have died myself ten thousand times before. Whatever I do or say, I also return." The First Law of Thermodynamics, the conservation of energy, certified personal immortality. After the final transmigration—"promotion and transfer," Whitman termed the process—the soul both merged with the cosmos and retained individual identity. Though he offered no details, he "had no doubt of it."

Scientific concepts were a portal to Whitman's true abode: "I enter by them," he said, "to an area of my dwelling." This mental domicile was furnished with a potpourri of notions derived directly or indirectly from a long succession of philosophers, sages, and seers East and West. Like Pythagoras, Plato, Berkeley, Kant, Fichte, Schelling, Hegel, and other philosophical idealists, Whitman believed the sensory world is but the shadow of reality. "Real reality," as he called it, was an immaterial mind, soul, or spirit (the terms were interchangeable) that filters, interprets, and even creates the data of sensation. The objects of thought had more reality than the objects of sense. Unlike sullied and corruptible matter, mind was eternal, unfettered by time or space, its own constructions. Whitman's idealism was tricked out with a mishmash of moral assumptions culled from American transcendentalism, Quakerism (his mother was a Quaker), enlightenment optimism, and Eastern mysticism.

The idealism, in its unadulterated form, arrived late. In his early thirties, still brimming with animal vitality, Whitman had dubbed himself "the poet of the body and the poet of the soul." He gave flesh and spirit equal billing. "There is that lot of me, and all so luscious," he exulted. Such scrumptiousness merited dispersion in the gene pool: "On women fit for conception I start bigger and nimbler babes, / This day I am jetting the stuff of more arrogant republics." He reveled in his own anatomy, lovingly itemizing its sundry delights. No part was excepted. The scent of his armpits was "aroma finer than prayer," the fat on his bones incomparably sweet, his "firm masculine coulter" miracle enough to "stagger an infidel." His tactile sensations gave him an electric thrill:

I merely stir, press, feel with my fingers, and am happy,
To touch my person to someone else is about as much as I can stand.
Is this a touch? quivering me to a new identity,
Flames and ether making a rush for my veins.

By forty, his senses dulling, he no longer vaunted in his youthful sap. He abandoned dualism for a monism of soul. He was explicit: "I affirm now that the mind governs—and that all depends on the mind." Matter was now a mask that disguised reality. Whitman's demotion of matter coincided with a diminution in his poetic powers. He was more the poet of the body than he knew.

Like Ralph Waldo Emerson, his proximate mentor, Whitman considered material phenomena cryptic symbols for spiritual truths: "The kernel of every object that can be seen, felt, or thought of has its relations to the soul, and is significant of something there." Everywhere he turned, he found "letters from God" waiting to be deciphered:

To me the converging objects of the universe perpetually flow,
All are written to me, and I must get what the writing means.

Whitman's idealism was tricked out with a mishmash of moral assumptions culled from American transcendentalism, Quakerism (his mother was a Quaker), enlightenment optimism, and Eastern mysticism.

Decoded by the Intuition, the letters revealed a suprasensible world infused with forces, purposes, designs, and patterns emancipated from mundane causality, coherence, logic, consistency, and probability. This ethereal wonderland obeyed a motto enunciated by the mystic poet William Blake: "Everything possible to be believed is an image of truth." Truth needn't be verifiable or amenable to falsification. It was circumscribed only by the limits of imagination. Afoot with vision, Whitman saw much that mystics before him had seen.

- *Life is indestructible*

There is no stoppage, and can never be stoppage;
If I and you and the worlds all beneath or upon their surfaces, and all the palpable life, were this moment reduced back to a pallid float, it would not avail in the long run,
We should surely bring up again where we now stand.

- *Death is illusory*

All goes onward and outward and nothing collapses,
And to die is different from what anyone supposed, and luckier.
Has anyone supposed it lucky to be born?
I hasten to inform him or her it is just as lucky to die, and I know it.

- *God is immanent in the creation*

I hear and behold God in every object.
I see something of God each hour of the twenty-four, and each moment then,
In the faces of men and women I see God, and in my own face in the glass.

- *Love unites all*

And I know that the hand of God is the elderhand of my own,
And I know that the spirit of God is the eldest brother of my own,
And that all the men ever born are my brothers and the women my sisters and lovers,
And that a kelson of the creation is love.

- *Evil is part of the good*

What blurt is this about virtue and about vice?
Evil propels me, and reform of evil propels me. I stand indifferent.
My gait is no faultfinder's or rejector's gait,
I moisten the roots of all that has grown.

- *Truth comes by intuition, not analysis*

Backward I see in my own days where I sweated through fog with linguists and contenders,
I have no mockings or arguments. I witness and wait.

- *Truth is ineffable*

Writing and talk do not prove me,
I carry the plenum of proof and everything else in my face,
With the hush of my lips I confound the topmost skeptic.

Whitman's mysticism poses insuperable barriers for the rational mind. Since he treats intuition as a higher mode of cognition than reason, logic, and science, his claims can't be tested by his own criterion for truth. Everything he says could be true, just as humanity could have been created five seconds ago with stocked memories of a long past. Where reason must pander to imagination, anything goes. Submitted to vulgar analysis, the claims emerge as semantic vacuums, devoid of intelligible propositions. They have only psychological, metaphorical, or emotional import. Two examples should suffice.

Without a clear definition of "God," we can't know whether God is "in every object." Even if it could be shown "he" isn't, Whitman might still see and hear him there. Perceptions can be delusive, especially when core beliefs are at stake. In his poem "The Snow Man," Wallace Stevens notes that few people can survey nature and "behold nothing that is not there and the nothing that is."

If truth is ineffable, beyond words, we can't determine whether it can be intuited. We don't know what to test for. No one can tell us. Whitman doesn't help: "There is that in me, I do not know what it is, but I know it is in me." To elaborate is futile: "I do not know it, it is without name, it is a word unsaid."

At first blush, modern physics seems to bulwark Whitman's claim that ultimate reality is ineffable and immaterial. The quantum world exhibits eerie properties that challenge verbal formulation and basic notions of materiality. Niels Bohr is reported to have said that anyone not confused by quantum mechanics doesn't understand it. Subatomic particles, the substratum of all reality, have been stripped of the irreducible thingness associated with matter. They are now treated as the bunching of force fields, best understood as mathematical constructs of human observers. Were Whitman alive, he might offer a triumphant toast.

While "Science Proves Mystics Right" might fly in a tabloid, it misses the point. The uncertainties of science don't validate the certitudes of mysticism. Mysticism offers an immutable prescription of how the universe must be. Science offers provisional descriptions of how it is thought to be. Science remains in constant flux as it assimilates new data. New theories could render quantum mechanics obsolescent (though the prospect is unlikely). The spirit of science is one of Olympian disinterest, unsullied by emotional bias. Mysticism plucks from the "incorporeal air" a host of moral tenets that cater to human desire.

Rather than science preying on him, Whitman preyed on science. That it might feed his cosmic affirmations, he mutilated its spirit. He wanted a universe suffused with love, goodness, joy, equality, and justice, not one pervaded by Herman Melville's inscrutable malice or Robert Frost's desert places. Hence, in his *Weltanschauung*, love becomes a cosmic force, evil a virtue, death an illusion, truth an intuition, etc. He pertinaciously denied metaphysical clout to pessimism. At times, his incorrigible yeasaying flirts with smugness:

Were mankind murderous or jealous upon you my brother or my sister?
I am sorry for you. They are not murderous or jealous upon me;
All has been gentle with me. I keep no count with lamentation;
What have I to do with lamentation?

Notwithstanding his "defense" of science, Whitman was imbued with a Romantic mentality. Like Pascal, he thought everyone had an innate truth detector, the heart, which knew more than the head. Earnest feelings were an entrée to cosmic truths. In *A History of Western Philosophy*, Bertrand Russell spells out the problem with elevating one's own emotions to universal ordinances:

> There are two objections to the practice of basing beliefs as to objective fact upon the emotions of the heart. One is that there is no reason whatever to suppose that such beliefs will be true; the other is, that the resulting beliefs will be private, since the heart says different things to different people.

Whitman thought all hearts spoke a common tongue because they had been instructed by the same cosmic tutor. What seemed true to him must be true for everyone. Had his mind been of a scientific cast, his reading of Ingersoll and Huxley would have raised a suspicion that hearts are multilingual. Fortunately for Walt Whitman, poetic license covers a multitude of dubious assumptions when the proponent is a great poet. □

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The Strange Case of Pat the Ripper

JOE NICKELL

Portrait of a Killer: Jack the Ripper, Case Closed. By Patricia Cornwell. Putnam, New York, 2002. ISBN: 0-399-14932-5. Hardcover, $27.95.

I guess my woman's intuition just didn't function, or something!

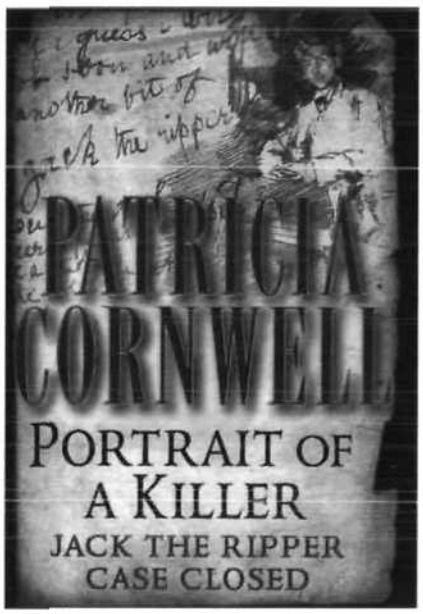
—Nancy Drew
Nancy Drew, Detective *(1938)*

The gruesome murders by Jack the Ripper—history's most notorious serial slasher—continue to inspire horror. And the question of his identity continues to attract theorists, most recently popular crime novelist Patricia Cornwell. But is she really justified in pronouncing the mystery solved? Has her touted six-million-dollar and thirteen-month search led her along a trail of evidence to finally uncover the maniacal culprit? Or has she begun with an improbable suspect and worked backward through myriad, often-conflicting details, picking and choosing, to incriminate him? To answer these questions, some background is in order.

The Ripper Case

Sometimes called the Whitechapel murders, these were a series of slayings of prostitutes that occurred in 1888 in or near the Whitechapel district of London's squalid East End. The victims were Mary Ann "Polly" Nichols (August 31), Annie Chapman (September 8), Elizabeth Stride and Catharine Eddowes (September 30, only some forty minutes apart), and Mary Jane Kelly (November 9). All had their throats cut and most were otherwise mutilated except Stride, whose attack was apparently interrupted, thus prompting the killer to seek another victim. While Nichols's abdomen was only slashed open, Chapman, Eddowes, and Kelly were disemboweled; Eddowes's uterus and left kidney were taken, as was Kelly's heart. (Kelly, whose body was grossly mutilated, was the only one found indoors; see Begg et al. 1994.)

According to an 1894 memorandum



by M.L. Macnaghten, then Chief Constable, CID, Scotland Yard, there had been at least three prominent Ripper suspects: (1) M.J. Druitt, who was "sexually insane" and committed suicide (by drowning) after the Ripper murders; (2) "Kosminski" (apparently Aaron Kosminski), a Polish Jew who resided in Whitechapel, had a hatred of prostitutes, and was subsequently imprisoned in an asylum for the insane; and (3) Michael Ostrog, allegedly a Russian doctor who was a "homicidal maniac" whose "whereabouts at the time of the murders could never be ascertained" (Begg et al. 1994, 116–121, 241–245, 279–290, 340–345).

In the midst of the attacks, after the death of Annie Chapman, letters began to be received by the Central News Agency and the Metropolitan Police signed "Jack the Ripper" (Evans and Skinner 2001). The earliest one (recently rediscovered [Cornwell 2002, 211]) was received on September 17. Most "Ripperologists" today accept the mounting evidence that these were the work of one or more journalists (Begg et al. 1994, 209–211). Nevertheless, the sobriquet "Jack the Ripper" stuck.

As the horrible crimes remained unsolved, popular writers began to propose suspects. Over the years, something of a Ripper industry has grown up, with authors proposing first one candidate and then another. Ripperologist Martin Fido (2001) took the words out of my mouth when he said of some of the books, "The common reader like myself found each identification quite convincing as he read it, and kept changing his mind about which was the Ripper."

There is a formula to such "identifications." The author starts with someone who lived in Whitechapel (or elsewhere in London, or at least in

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England, or . . .) and proceeds to build a case against him. Maybe he showed an interest in the Ripper crimes (who didn't?); possibly he exhibited some odd behavior; perhaps he owned a knife. Such elements can be built up with speculation and innuendo, while any contrary facts can be ignored, swept aside, or rationalized. *Voilà!* To the unsuspecting reader, the real Jack the Ripper has emerged from the shadows.

Various suspects have come and—often mercifully—gone, including assorted lunatics and doctors. The latter were postulated on the notion, probably mistaken, that the Ripper's handiwork showed surgical skill. Along similar lines, Sir Arthur Conan Doyle, creator of the world's most famous fictional sleuth, Sherlock Holmes, opined that the murderer was a woman. He felt that the killer would have been heavily stained with blood, but that a midwife wearing a bloodstained apron could pass without suspicion (Begg et al. 1994, 207).

An alleged diary of Jack the Ripper brought me into the case in 1993. Surfacing two years earlier in possession of a Liverpool scrap-metal dealer named Mike Barrett, the "diary" was ostensibly by James Maybrick, a Liverpool cotton merchant who died of poison in 1889. According to the entries, Maybrick sought revenge on his philandering wife, perpetrating the Ripper murders in drug-induced frenzies.

For Warner Books, which intended to publish the text if authentic, manuscript authority Kenneth Rendell and I, together with a team of forensic experts, examined the diary. It proved to be an obvious forgery, based on conclusive handwriting evidence in addition to a number of suspicious features. Eventually Barrett confessed he had faked the diary using an old photo album from which he removed the used pages. Then he transcribed the text (which he had composed over ten days' time on a word processor) using a reproduction Victorian ink purchased at an art store. Although Barrett soon retracted his confession, ink analysis (performed on our team's remaining samples at the instigation of my friend and fellow investigator Melvin Harris) confirmed the presence of a modern preservative; it was used in the reproduction ink but not, of course, in the original variety (Nickell 1995; 1997).

Another Suspect!

Enter mystery writer Patricia Cornwell. Like others who proclaimed that their books represented "The Final Solution," "The Mystery Solved," and so on (Begg et al. 1994, 216, 217), Cornwell gives her *Portrait of a Killer* the subtitle, *Jack the Ripper, Case Closed.*

Actually, as a *New York Times* reviewer correctly characterizes it, "this book is a prosecution, not an investigation" (Carr 2002). Cornwell begins with her suspect—artist Walter Sickert (1860–1942)—without ever really explaining how she chose him. She does state, "I began to wonder about Sickert when I was flipping through a book of his art" (2002, 12). Elsewhere, she "has repeatedly said that she doesn't like the look of the painter's face in his self-portraits, or the subject matter and tone of his paintings generally" (Carr 2002).

Having targeted her suspect, Cornwell then begins to hack and slash at poor Sickert's life and reputation, like a veritable Pat the Ripper. Sickert, a major British post-impressionist, was a leader of a school of painting that focused on gloomy urban interiors. One such Sickert work, titled *Jack the Ripper's Bedroom* (1908) is treated as an *aha!* by Cornwell. Actually it is simply an interior of a bedroom at 6 Mornington Crescent, Camden Town, part of the upper two floors that Sickert rented in 1906 after returning to London from France. He had come to believe that a man suspected of having been Jack the Ripper—a veterinary student whose name Sickert eventually forgot—had lodged there in the 1880s (Cornwell 2002, 60–61; Begg et al. 1994, 214, 426–429).

Elsewhere Cornwell notes that—to her at least—most of Sickert's "sprawling nudes" look dead and that faces in a 1903 sketch and 1906 painting "resemble" the face of Mary Ann Nichols (2002, 121–122). Subjectivity and innuendo are ever present, and Cornwell continually speaks of Sickert as Jack the Ripper, and vice-versa, as if her imaginings were fact.

Learning from a nephew that Sickert had had operations to correct a fistula of the penis, Cornwell admits that lacking medical records, she "can't say exactly what Sickert's penile anomaly was" but she concludes, after pages devoted to the topic, that the operations "would have resulted in strictures and scarring that could have made erections painful or impossible." She adds, "He may have suffered partial amputation." Cornwell believes her speculations establish a "possible motive" for Sickert to mutilate prostitutes "but," she concedes, "I needed more" (*Ripper* 2002).

Of course, intuition and a novelist's imagination can carry one only so far, as Cornwell seems to know. "I'm not just a fiction writer," she said on a television documentary (*Ripper* 2002), and indeed she once worked in a coroner's office, even "helping out" around the corpses (Cornwell 2002, 10). She insists she is "one-hundred percent sure" that Walter Sickert was Jack the Riper—"absolutely positive," she says (*Ripper* 2002). Alas, one recalls Ambrose Bierce's definition of *positive*: "Mistaken at the top of one's voice" (Bierce 1911).

"Ripper" Letters

In presenting her case, in her book as well as on TV programs, Cornwell tells how she took a forensic approach, observing that previous Ripper identifications were "based on theories, not evidence" (*Ripper* 2002). Actually Cornwell did employ such forensic techniques as DNA testing and watermark identification. Unfortunately, the results were far less meaningful than some people have come to believe, and the procedures were flawed by being predicated on intuition and pseudoscience.

Cornwell believes that the hundreds of letters supposedly written by Jack the Ripper were not mostly hoaxes, as Ripperologists generally conclude. She

states: "It is obvious that the actual Ripper wrote far more of the Ripper letters than he has ever been credited with. In fact, I believe he wrote most of them. In face, Walter Sickert wrote most of them." She also states, "I have no doubt that Sickert had an amazing ability to write in many different hands" (Cornwell 2002, 14, 181). She repeatedly states what she *believes*—not "has proof of," but believes.

While stating that "Using chemicals and highly sensitive instruments to analyze inks, paints, and paper is scientific," she adds: "Handwriting comparison is not. It is an investigative tool that can be powerful and convincing, especially in detecting forgeries. But," she continues, "if a suspect is adept in disguising his handwriting, comparison can be frustrating or impossible" (Cornwell 2002, 167). Certainly handwriting comparison is not an exact science but it is more scientific than Cornwell appears to imagine, and qualified document examiners have made serious studies of the traits of natural, imitated, and disguised handwritings; they can often demonstrate identifying *individual* characteristics even in disguised handwriting and hand printing (O'Hara 1973; Nickell 1996). As one expert notes, "the task of maintaining an effective disguise grows more difficult with each additional word" (Hilton 1982, 169).

Even so, the problem with Cornwell is not that she is skeptical of handwriting evidence; it is that having dismissed professional experts in the field, she feels at liberty to replace them on her team with a "letterer." That's right, a "letterer," which she defines as someone "who designs and draws lettering," i.e., a calligrapher or graphic artist. When the letterer perused the so-called "Ripper letters," she supposedly "connected" a number of them, says Cornwell, "through quirks and how the hand made the writing." She states, "These same quirks and hand positions lurk in Sickert's erratic handwriting as well" (Cornwell 2002, 14, 181).

In addition to the letterer, Cornwell (187–188)—mentioning an art historian, paper experts, and an archivist—states, "It has required intellectual sleuths such as these to discover that many of the Ripper letters contain telltale signs of Sickert's handwriting." Oh really? Does a single one of these opiners know that distinct similarities between two writings may be nothing more than *class* characteristics (i.e., those common to the same writing system)? Mistaking these for *individual* characteristics is, according to a distinguished expert, "the most common error of the unqualified examiner" (Hilton 1982, 209).

The problem with Cornwell is not that she is skeptical of handwriting evidence; it is that having dismissed professional experts in the field, she feels at liberty to replace them on her team with a "letterer."

There is more. Cornwell, playing linguist, also links many of the Ripper letters together and connects them to Sickert through certain words and phrases. This seems particularly ludicrous since many of the phrases—including "ha ha," "catch me," "little games," and others—were in an early "Jack the Ripper" letter and postcard (believed to be journalistic hoaxes, as mentioned earlier). Facsimiles of these were pictured on a Metropolitan Police flyer and further pictured and quoted in newspapers (Evans and Skinner 2001, 29–44). It seems quite probable that copycat hoaxers—at least three of which were actually caught (Evans and Skinner 2001, 72–80)—were prompted to imitate those communications.

The connection to Sickert? Wel-l-l, for example, Cornwell points out that the artist James McNeill Whistler, to whom Sickert had apprenticed, was fond of using the word *games* and of cackling, "ha! ha!" Need more proof? Both Sickert and some of the "Ripper" letters used the word *fools* (Cornwell 2002, 54–58).

Cornwell also engages in psychobabble. Stating that many "Ripper" letters "show the skilled hand of a highly trained or professional artist," she adds: "More than a dozen include phallic drawings of knives—all long, daggerlike instruments—except for two strange, short truncated blades in brazenly taunting letters." Apparently the "short" phallic blades are cited to evoke the "partial amputation" of Sickert's penis that she has (in the previous paragraph) fantasized (Cornwell 2002, 65–66).

As to the "professional" drawings, one is more so than Cornwell realizes. Reproduced in *Portrait of a Killer*, it depicts the head of a rough-looking fellow, with surrounding text stating: "This is my Photo of Jack the Ripper[.] 10 more and up goes the Sponge[.] Sig [i.e., signed] Jack the Ripper." Cornwell thinks the illustration is a drawing, but a color photograph (Evans and Skinner 2001, xii) shows that, in contrast to the script which is brownish like most aged writing ink of the period, the image is jet black like printing ink. More significantly, whereas the writing has the line quality of a "dip" pen, the image does not, instead exhibiting characteristics of a common wood engraving (a variety of woodcut) with its graver-scooped line quality and other distinctive features such as "negative" crosshatching (Gascoigne 1986). Since wood engravings were used in newspapers of the Ripper period, this could be not only evidence of a simple and obvious hoax, but of a journalistic one as well.

Watermarks and DNA

Cornwell tries to boost the evidence from

the letters by matching watermarks in the paper. Much effort was expended in determining that some of the "Ripper" letters and some of Sickert's bore "A Pirie & Sons" and "Joynson Superfine" watermarks. Sums up a critic, the situation is "roughly analogous to what we would have faced in 1977 if one of David Berkowitz's famous 'Son of Sam' letters to Jimmy Breslin had been written on a Hallmark card" (Carr 2002). (Her reportage here is not always even accurate: In a photo caption she states that a certain "Ripper" letter has a watermark that "matches" one in a Sickert letter to Whistler, but in fact a close look at the photographs shows that they are merely from the same company [A. Pirie & Sons]; being *date* watermarks, the Sickert one shows an "86" while the "Ripper" one an "87.")

Cornwell knows the value that the mention of DNA testing can have on lay people. A *Publisher's Weekly* review of *Portrait of a Killer* (Editorial 2002) gushes, "The book is filled with newsworthy revelations, including the successful use of DNA analysis to establish a link between an envelope mailed by the Ripper and two envelopes used by Sickert."

In fact, nuclear DNA could not be obtained from any of the fifty-five samples in which DNA was sought (from saliva traces that had moistened envelope flaps or stamps). Therefore, the experts switched to mitochondrial DNA, a much less specific indicator, and an expert concluded that matching sequences could well be a coincidence. As one reviewer concluded, "it might have been Sickert who licked the stamps on the alleged Ripper letter, or it might have been any one of several hundred thousand other people" (Carr 2002).

As it happened, most of the fifty-five samples were apparently contaminated by the DNA of other persons. Cornwell (2002, 168–172) also concedes, "A drawback to our testing is that the ever-elusive Walter Sickert has yet to offer us his DNA profile." (Sickert was cremated.)

Not Guilty

One wonders how far into her research Cornwell was when she realized that Walter Sickert appeared to have an alibi for some of the Ripper crimes. On September 21, 1888, Sickert's wife, Ellen, wrote to her brother-in-law stating that Walter had gone to Normandy to see "his people" (artist friends) and would be away for weeks.

If true, that would seem to mean he was not in London to commit the last three Ripper killings (that is, the double murders of Elizabeth Stride and Catharine Eddowes on September 30 and the slaying of Mary Jane Kelly on November 9). But Cornwell is committed to what she calls her "crusade" against Sickert (*Ripper* 2002), and sniffs, "Sickert may have left, but, not necessarily for France." In fact, a Sickert note to a friend, although undated, shows he was in a French fishing village, Saint-Valery-en-Caux, in the fall of 1888 (Cornwell 2002, 214–216).

Being in France, rather than committing murders, might explain another of Cornwell's concerns, that Sickert's "artistic productivity wasn't at its usual high from August through the rest of the year" (2002, 217). Being away from one's studios can have that effect.

According to the *New York Times*, Cornwell's refusal to concede Sickert had a credible alibi is yet another example of how she eventually "dispenses with even weak attempts at logical persuasion and begins to simply state possibilities as facts on the basis of nothing more than her intuition" (Carr 2002). When something conflicts with her scenario, she even manages to convert a liability into an asset. For instance, when eyewitnesses described certain Ripper suspects as dark, foreign-looking men with black beards or mustaches (Sugden 2002), Cornwell suggests a possible solution: Sickert, an erstwhile actor, could have used dark grease paint, hair dye, and false whiskers to effect disguises (Cornwell 2002, 245–246).

I think what we have in Patricia Cornwell is a classic example of the difference between a writer of detective fiction and a real detective. The former is in control of the evidence, creating and manipulating it to incriminate the imaginary perpetrator who has been decided on before (Day 1996). The actual detective, on the other hand, may be bereft of obvious clues, confronted with a bewildering array of "facts," and required to discover evidence that may help identify—not a storybook culprit, but a real one.

Cornwell is well known as an entertaining writer of fiction. She continues that tradition with *Portrait of a Killer.*

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It's Ba-a-ack! *The Bible Code II*

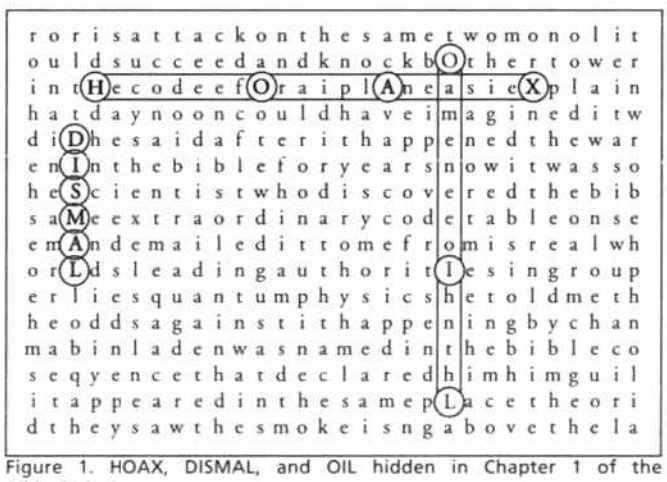
DAVID E. THOMAS

Bible Code II: The Countdown. By Michael Drosnin. Viking Press, New York, 2002. ISBN 0-670032-107. 292 pages. Hardcover, $26.95.

In June of 1997, journalist Michael Drosnin's book *The Bible Code* was released to great fanfare (Drosnin 1997). It quickly climbed to third on the *New York Times* bestseller list, and remained on that list for weeks. Drosnin's book discussed "Equidistant Letter Sequences," a way to derive hidden messages by selecting letters from the Hebrew Torah separated by a fixed number of intervening letters. As an example, the English word *generalization* contains the "hidden message" Nazi, at a skip of 3 (every third letter): ge**N**er**A**li**Z**at**I**on.

I discussed the Bible Code in the November/December 1997 SKEPTICAL INQUIRER (Vol. 21, No. 6), and also in the March/April 1998 issue (Vol. 22, No. 2). Much has happened since then, most notably the publication of a devastating rebuttal to the original *Statistical Science* paper (Witztum 1994) that really got the "Bible Code" going. The rebuttal, by Australian Brendan McKay, working with several Hebrew colleagues, showed that extremely small variations in the messages to be located, and in the procedure itself, produce *far* less impressive results than were obtained by Rips and Witztum (McKay 1999). McKay's group presented compelling evidence that careful selection of particular forms of words effectively "tuned" Witztum's and Rips's method to their data, completely invalidating the much-ballyhooed 1994 statistical "test."

Has Drosnin paid attention to his critics? Not at all. He has been far too busy trying to convince Yasser Arafat and Shimon Peres of the reality of the "code," and analyzing new events like the terror attacks of September 11, 2001. Drosnin describes his recent efforts in his new sequel, *The Bible Code II*, released in November 2002 (Drosnin 2002). The first chapter tells how Drosnin witnessed the attacks on the World Trade Center, and how he quickly found the event predicted as hidden messages in the Torah (the first five books of the Bible in the original Hebrew). Subsequent chapters discuss Drosnin's meetings with Arafat and Peres, his attempts to meet with Ariel Sharon and President Bush, his search for hidden Torah messages about Monica Lewinsky and Clinton and the Bush/Gore 2000 election debacle, and his ongoing search for a mysterious "obelisk" (the "key" to the Bible code, and to humanity's origin, which he feels is still buried in a valley near the Dead Sea). Drosnin states repeatedly that he doesn't believe in God, but he certainly believes an intelligence higher than human created the "code." Drosnin's obsession with his own role as a major "Bible Code" player is nowhere more obvious than in his introduction to the chapter on DNA, the genetic code: "Early in my search for the key to the Bible code, I may have also stumbled onto the key for the code of life... According to the Bible code, our 'DNA was brought in a vehicle.'" Drosnin has a whole chapter on the "aliens" he feels may be responsible for placing humans on Earth. His words might offer comfort to "Intelligent Design" supporters like the Raelians of Clonaid, but surely will disturb most evangelical Christians.


r o r i s a t t a c k o n t h e s a m e t w o m o n o l i t
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e r l i e s q u a n t u m p h y s i c s h e t o l d m e t h
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m a b i n l a d e n w a s n a m e d i n t h e b i b l e c o
s e q y e n c e t h a t d e c l a r e d h i m h i m g u i l
i t a p p e a r e d i n t h e s a m e p L a c e t h e o r i
d t h e y s a w t h e s m o k e i s n g a b o v e t h e l a
Figure 1. HOAX, DISMAL, and OIL hidden in Chapter 1 of the *Bible Code II*.

In Drosnin's appendix, he finally gets around to discussing critics like McKay. Drosnin supplies a surprising revisionist history of the codes, often contradicting what he wrote in his first book. And he takes a number of cheap shots, for example, criticizing the rebuttal by McKay and his three Hebrew co-authors as "written by a team of mathematicians led by an Australian who did not read the language of the Bible code." On the next page, Drosnin extols the code-supporting findings of Harold Gans, but neglects to mention that Gans doesn't read Hebrew *either*. He makes a major gaffe in describing the original Witztum/Rips experiment as "a classic double-blind experiment. The independent expert [Havlin] who chose the data did not even know how the data would affect the outcome of the experiment." McKay points out the obvious in a new article on his Web site

David E. Thomas is an Albuquerque-area physicist and mathematician. He is President of New Mexicans for Science and Reason, a CSICOP Fellow, and a SKEPTICAL INQUIRER consulting editor.

(McKay 2002): "That's not double-blind. In a double-blind experiment, the investigators (Rips and Co.) would also not know which data were good and which bad." Drosnin unfairly labels McKay's open, public demonstration of what can be achieved by manipulation of data as a "hoax." And Drosnin even accuses McKay of initially finding a positive result, and then hiding it. McKay's comment: "This is an absolute lie. Nothing like this ever happened and we did not even see this claim before now."

Drosnin again claims that "No one has found in *War and Peace* or *Moby Dick* a correct prediction, in advance, of a world event." Had he bothered to actually read what his critics are saying, he would have learned about my prediction of the Chicago Bulls victory in the 1998 NBA playoffs, based on "codes" in Tolstoy's *War and Peace*, made months *before* the deciding game (Thomas 2002).

Indeed, Drosnin has failed to learn the single most important fact about so-called "Bible Codes": this arcane technique allows one to find virtually *any* desired message hidden in *any* desired text.

Columnist Bob Novak discussed the Bible Code with Drosnin on CNN's *Crossfire* on December 2, 2002. (*Crossfire* 2002). Novak said, "Mr Drosnin, as far as I can see all the experts, scientists, Judaic scholars, think you're out to lunch on this book. And let me quote one of them now, Dave Thomas in *People* magazine, this is not the late Dave Thomas from Wendy's, this is a mathematician and physicist. And he says, he wrote in 1997, 'Hidden messages can be found anywhere provided you're willing to invest time and effort to harvest the vast field of probability. He, Drosnin, underestimates the power of chance combined with the brute force of computers. He says these messages are beyond the power of chance, and I've proven they are not.' [Lang 1997] What is your response to Dr. Thomas here?"

Drosnin's reply: "It's really silly." I agree that the Bible Code itself is indeed silly, but my investigations into such codes are anything but. I have used only "official" Bible Code methods to find amazing puzzles in all kinds of texts, even though believers insist they can only be found in the Torah.

I have recently applied the "Bible Code" technique to the first chapter of Drosnin's new sequel itself, available on the Internet. The excerpt consists of a mere 6,966 characters, or 1,617 words, but nonetheless contains the following striking secret message, encoded in Drosnin's very own words: "The Bible Code is a silly, dumb, fake, false, evil, nasty, dismal fraud and snake-oil hoax."

Figure 1 shows a small section of the complete puzzle. Drosnin's sentences run left-to-right, stripped of spaces, punctuation, and numbers. The puzzle step is 55, which means that each letter comes exactly 55 letters after the one appearing just above it in the puzzle. The match for *dismal* also has a step of 55, so that word appears as a contiguous vertical column. The word *oil* has letters that are 440 letters apart in the text, so its letters appear every eighth row (440/55 = 8). Words with other steps between letters can appear as diagonals. The entire (and rather large) puzzle can be seen at the NMSR Web site (Thomas 2002).

Of special interest is the stunning seven-step code for *hoax*, which is encoded in just seven words from Drosnin's new book: "And I never thought to look in t**H**e code f**O**r 'airpl**A**ne.' As I e**X**plained to a friend at the CIA later that day, . . ."

I also looked for secret messages in Drosnin's Appendix. And, running right through his assertion that ". . . to this day, no one has found any evidence that Rips is wrong" is the hidden message *false* (figure 2).

Drosnin hasn't learned anything in the last five years, but perhaps the world has. Drosnin's sequel appeared on the *New York Times* bestseller list at number 25 on December 22, 2002; by January 5, 2003, it had slipped to number 30, three books below *Hollywood Hulk Hogan*. By January 19, it had broken into the top 15, at number 10.

Will Drosnin drop the Bible Code and take up wrestling? I'll guess I'll check on what looms ahead in *Moby Dick*.

o s h o s e i n s t e a d t h e n e x t s a g e s w h o s e e n t r i e s i n
j u r n a l a n e v e n m o r e d e t a i l e d s t a e m e n t o **F** h i s r o
n e s c i n c e w a s i n f o r m e d i n w r i t i n g i n a d v **A** n c e b y
d o l l a r b i l l t h a t w o u l d n o t p r o v e t h a t a l **L** m o n e y
n o o n e h a s f o u n d a n y e v i d e n c e t h a t r i p s i S w r o n g
. f i n d t h e m w r o t e m c k a y e t a l i g n o r i n g t h **E** f a c t t
e s u l t s s o f t h e i r f i r s t e x p e r i m e n t a n d o f c o u r s

Figure 2. FALSE hidden in the Appendix of the *Bible Code II*.

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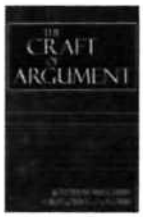
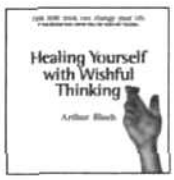
Listing does not preclude future review.



The Craft of Argument, Concise Edition. **Joseph M. Williams and Gregory G. Colomb**. Longman Publishers, 1185 Avenue of the Americas, New York, NY 10036. 2003. 298 pp. [no price given], softcover. An introduction for college undergraduates to the principles of argumentation. It frames argument not as a way to coerce one party into agreement with another but as a cooperative inquiry into a contested issue whose solutions will satisfy all parties. The authors describe thoughtful argument as the basis of human rationality and focus on the ways unsound reasoning can lead to bad arguments and how careful and thoughtful arguments can encourage sound thinking. Also incorporates the most recent research from the "biases and heuristics" literature. This attempt to help students integrate the skills of writing, thinking, and arguing addresses issues raised in virtually every issue of SI.

Dear Professor Einstein: Albert Einstein's Letters to and from Children. Edited by Alice Calaprice. Foreword by Evelyn Einstein. Prometheus Books, Amherst, NY 14228-2197, 2002. $24. Delightful little book of Einstein's notes to and from children from 1928 to 1955, the year of Einstein's death. With a foreword by Einstein's granddaughter, a short biography by the editor, and a chapter on Einstein's education.



Healing Yourself with Wishful Thinking. Arthur Bloch. Ten Speed Press, P.O. Box 7123, Berkeley, CA 94707. 2002. 130 pp., $9.95, softcover. Arthur Bloch, author of the *Murphy's Law* books and producer/director of the PBS series *Thinking Allowed*, wrote this often dead-on parody, promising readers they can "Learn sophisticated self-empowerment techniques such as 'never-minding,' 'glossing-over,' 'blame-fixing,' and 'positive forgetfulness.'" With chapters like "Your Spirit Guide: A Voice From Beyond Reason" and "Preventing Inner Child Abuse: Enact Your Own Megan's Law," Bloch skewers magical thinking, New Age puffery, self-important self-help books, and much more. Who can doubt this testimonial from a satisfied reader? "I lost my little finger when I was just a child. Since using your *Wishful Thinking* program, I'm sure I can see the stub beginning to grow." An amusing antidote to the accusation that skeptics are just a bunch of dour doubters, and a lighthearted nudge into skeptical thought.

Lost Discoveries: The Ancient Roots of Modern Science—from the Babylonians to the Maya. Dick Teresi. Simon & Schuster, 2002. 453 pp. $27, hardcover. This examination of the non-Western contributions to science started as an effort to show that they were paltry but ended with discovery of examples of science from all over the non-Western world—Sumeria, Babylon, Egypt, India, China, Africa, the Arab world, the Americas, and the Pacific Islands—that equaled or surpassed Greek and European learning. Teresi is careful to distinguish himself from promoters of multicultural pseudoscience in nevertheless showing important examples of early science in the non-Greek, non European world.

Magick, Mayhem, and Mavericks: The Spirited History of Physical Chemistry. Cathy Cobb. Prometheus Books, Amherst, NY 14228-2197, 2002. 420 pp., $29, hardcover. A gallant attempt to provide a popular history of physical chemistry—the physics of chemistry—complete with its heroes and heroines and its mavericks and renegades. Dealing with objects (atoms) usually too small to see, always in motion, undergoing changes you can't always measure, and behaving in ways you can't always predict, physical chemistry has its share of challenges, and Cobb's humanistic, historical approach results in a lively, readable account of it all.

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The Mammoth Encyclopedia of Extraterrestrial Encounters. Edited by *Ronald D. Story.* London: Constable & Robinson, 2002. 834 pp. £9.99 or US$14.95 + shipping. UK edition of "comprehensive A-to-Z guide to UFOs and extraterrestrials" published in America under same title absent "Mammoth" by New American Library (see listing in March/April 2002 SI).

Rational Mysticism: Dispatches from the Border Between Science and Spirituality. John Horgan. Houghton Mifflin, 2003. 288 pp. $25. Horgan, author of the controversial book *The End of Science*, here turns his attention to mysticism, specifically to how trances, visions, prayer, and other mystical experiences "work." He seeks whether there are scientific explanations—from neurology, psychology, chemistry, radiology—for religious mysteries and transcendent experiences. His approach is journalistic and at times personal.

The Salem Witch Trials: A Day-by-Day Chronicle of a Community Under Siege. Marilynne K. Roach. Cooper Square Press, 200 Park Avenue South, Suite 1109, New York, NY 10003. 2002. 738 pp., $35, hardcover. There have been many books written on the Salem witch trials, but Roach's book is a remarkable achievement, the result of nearly thirty years of research. Roach provides an exhaustive and chronological day-by-day account of the trials, spanning 1692 to 1697. The book provides an interesting look at the social conditions and pre-existing worldviews that led to the hysterias and tragedies of that fearful Puritan colony. Though a daunting read both in length and detail, the book vividly recounts five years of accusations, imprisonments, and deaths.

—Kendrick Frazier and Benjamin Radford

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By arrangement with Amazon.com, January 2003.

Cobb County Clowns Stage Another Pi Fight

WILLIAM J. HOYT, JR.

Five score and five years ago, our fathers brought forth on this continent a new calculation, conceived in simplicity and dedicated to the proposition that all maths are created equal. The year was 1897. Indiana legislators, under the spell of a notorious crank, decided they would dispense with inconvenient facts. They decided that 3.14159, and all those digits that just go on and on and on, could and should be simpler. After, I'm sure, what can only be properly described as a legislative pi fight, they decreed that, henceforth in Indiana, pi shall have the value of 3. Or 4. Or maybe it was 9.2376. The wording was so bad, the value is in dispute to this day. Stubborn cusses that they are, those dogmatic mathematicians insisted on using the old, messy value of pi. The one that goes on and on and on. (A team of Japanese researchers announced December 6, 2002, that they had calculated the value of pi to 1.24 trillion decimal places, a new world record.) Here Indiana offered up a far easier and tastier pi, and those arrogant sots didn't even bite.

I know there have since been many other examples of governmental edicts against all rationality. Most haven't involved mathematical constants. Many recent ones have focused instead on that other inconvenient fact, evolution.

One recent example happened last September in Cobb County, Georgia. I'm sure that, just like the Indiana legislators, Cobb County school officials were just clowning around when they decided, I think, to open up evolutionary education to its alternatives. I'm equally certain they were simply clowning around while composing their written decision. It is

William Hoyt, Jr. writes from Southington, Connecticut.

quite humorous, after all:

> [I]t is the educational philosophy of the Cobb County School District to provide a broad based curriculum; therefore, the Cobb County School District believes that discussion of disputed views of academic subjects is a necessary element of providing a balanced education, including the study of the origin of the species. This subject remains an area of intense interest, research, and discussion among scholars. As a result, the study of this subject shall be handled in accordance with this policy and with objectivity and good judgment on the part of teachers, taking into account the age and maturity level of their students.
>
> The purpose of this policy is to foster critical thinking among students, to allow academic freedom consistent with legal requirements, to promote tolerance and acceptance of a diversity of opinion, and to ensure a posture of neutrality toward religion. It is the intent of the Cobb County Board of Education that this policy not be interpreted to restrict the teaching of evolution; to promote or require the teaching of creationism; or to discriminate for or against a particular set of religious beliefs, religion in general, or non-religion.

Say what? No wonder Johnny can't write clearly. What on earth do they want? Do they want to discuss "disputed views of academic subjects"? Disputed by whom?

Those who dispute evolution are mostly drawn from the ranks of fundamentalist Christianity and, more recently, Islam, not from biology departments. If the dispute is largely raised only by certain religious groups, then how does this policy ensure a posture of religious neutrality?

Academically, evolution belongs in the biology departments and in peer-reviewed biology journals. There are no papers in these journals that question whether evolution occurred. Biologists are too busy nailing down the details and the implications. Those who dispute evolution are mostly drawn from the ranks of fundamentalist Christianity and, more recently, Islam, not from biology departments. If the dispute is largely raised only by certain religious groups, then how does this policy ensure a posture of religious neutrality? And doesn't this sudden subject change to religion belie the puffery about academic disputes and discussion among scholars? With curiosity now piqued, let's dig a bit deeper into the wording.

"The origin of the species." This *howler might suggest the authors are* simply interested in one species, presumably we humans. Or perhaps the authors have chosen to adopt the classic creationist mangling of Darwin's title, *On the Origin of Species By Means of Natural Selection.* I'll leave it to the reader to speculate. Neither interpretation, I'm afraid, is very charitable.

"Foster critical thinking among students." How? It doesn't say teach evolution. It doesn't say don't teach evolution. It speaks of tolerance and acceptance of a *diversity of opinion. Is the hidden claim* here that evolution is alone among the sciences in being a disguised religious doctrine? Or do they also want students expressing their opinions, religious or otherwise, on whether gravity exists? Or whether the Sun rotates around Earth? Or even the correct definition of pi? These discussions, if handled appropriately, might also foster critical thinking skills. If they become the norm for all subjects, they'll also slow learning down to a crawl, and Cobb County parents will attend, along with their grandchildren, the graduations of their twenty-five-year-old children.

Cobb County will need to hire contortionists to teach biology while this policy is in effect. I can just hear such a teacher when she begins to present evolution. "No, Mary, this theory applies to all life up to humankind. No, not including humankind. Uh, no, I'm not saying we didn't evolve. No, I'm not saying we did, either. Uh, you really need to take this up next period in your Comparative Religion class. Uh, no, Gilroy, medical science does apply to humans. Yes, physics and chemistry, too. Uh, just not biological science. Well, specifically evolution. Or any part that may offend any religion. Okay, let's talk about dinosaurs. Yes, Jimmy, I know dinosaurs aren't mentioned in Genesis. I have no idea how Noah got them on the ark. Okay, I can see we can't continue this section without violating our neutral religious posture. Let's move onto plant pollination."

They're still arguing, five score and five years later, what Indiana thought pi should be. My guess is that in 2107 they'll still be arguing over what the heck it is a biology teacher in Cobb County was supposed to teach back in 2002. The world may little understand nor long remember what Cobb County said here, but it can never forget what they did here. Back in the bad old days, when the school board staged a pi fight that nobody won, and yet the students clearly lost. □

The Inconsolations of Philosophy

RALPH ESTLING

People are remarkably good at philosophizing, though they're not always aware that that's what they're doing. This is one major reason why humans are important, if only to themselves, because it is they who are the only beings (so far as we know) that supply meaning to Life, the Universe, and Everything, including themselves, if only for a while and subject to searching cross-examination. Nothing and no one else can do this, for this takes intelligence.

There *is* intelligent design in the Universe, but we had better define "intelligent" and "design" very carefully. It is not what the creationists say it is. Instead, it is what makes sense, not just to us, but in itself, whether we think it or not. It is not conscious, it is not aware of what it is doing, it does not plan ahead, it has no fixed purpose, no goal. Yet there appears to be a sensible process at work. Natural selection is clearly part of this process and, or so it is beginning to seem to some, that something with the truly awful name of "self-organized complexification" may be too. No one has made a plan nor is putting it into effect. Nature isn't consciously and judiciously making choices in "natural selection." The physical laws that govern and direct the Universe seem to have made things, including themselves, this way, for reasons we can't fathom, or perhaps for nothing that really merits the name of "reasons." (I sometimes catch myself wondering if we detect some vague, blurry sense of this self-running process in music, the best music, say, a Bach fugue, Gregorian chant, or the *Kaddish*, the Hebrew prayer for the dead. But of course music doesn't create itself, so please don't ask me what I mean by this, as I'm not at all sure and I'll only get embarrassed.)

Humans are important because a few of them do not pick "reasons" ready-made off the rack and say that everything is the inexplicable handiwork of the invisible, undetectable, ineluctable gods, but instead seek to create reasons of their own, which is philosophy. This is a far more complicated and vexing process than just simply letting the gods get on with it, so it's not surprising that only a small minority of humanity operate their minds in this fashion. I think we owe this minority a lot.

If there is an overall, overarching "Meaning" in Upper Case to things, we have yet to grasp what it is and it is more than possible that there isn't any, that existence constitutes all the "meaning" in lower case that there is and so perhaps we'd do well to look for another word and drop *meaning* altogether. Or redefine it drastically, more drastically than we want to. So far, we don't appear ready to take this step, or rather this hop, skip, and jump, not quite. So we hunt about for other definitions of *meaning* and *point*, something that won't demand too much from us and from the consolations of our philosophies.

If we are entirely honest with ourselves, and this is very hard, we forget consolations altogether and concentrate our minds, like Dr. Johnson's condemned prisoner, on underlying principles, fundamental and immutable truths, and these offer very little in the way of solace. I've reached the age now where the term "consolations of philosophy" takes on an ironic tone and the idea smirks at me in a way I don't particularly like. Well, tough. The Universe, it would seem, was not drawn up to my specifications. I've suspected as much for quite some time now.

It is easy to allow contempt for those

Ralph Estling writes from Ilminster, Somerset, England

who think the Universe *was* made to their specifications to creep in on its little cat feet. We slip easily into a despising *of belief-without-evidence and then*, quite effortlessly, into despising those who hold these beliefs. But contempt is not an attitude we can be proud of, it will not make us better or happier, and it is a risky business, for contempt creates contempt, and we are in no position to duck our own boomerangs with impunity. And then there's that bit about stones and glass houses to reckon with.

We are all unique and all the same. *That is our glory and our catastrophe.* I think few of us could live without some elements of self-deception. Reality is too overwhelming, too "other," it cannot be forced into a shape and size we would prefer it to assume and so it cannot be faced in its entirety. For some it cannot be faced at all.

So we seek out philosophy, though we are less choosy than the ancient Greeks, and incline towards the mish-mash and the hodge-podge, rather than the stoic or epicurean. Existentialism has long since passed its shelf life, and so no new all-purpose philosophy of life is with us or looming on the horizon. Some tour the horizon in search of it but it isn't there—or if it is it's hiding from us. In its day existentialism offered impressive thoughts and literary flourish about the essential absurdity of Life, the Universe, and Everything, and a number of people, not all of them French, were much taken by it. But over the years there was less to it than met the eye, and its long-term effects tended towards the underwhelming, because there is only so much one can say about absurdity as a philosophy of life and then you start to wonder if absurdity has gone too far and, if there is no point to anything, then maybe there is no point to existentialism either. In the 1950s and 1960s people *began to think about this and once that* happened existentialism was doomed.

French philosophies have always reminded me of French toilets. One reaches high above and pulls on the majestic chain. There is an explosion like the detonation of a rocket launch to Jupiter, a thundering, an avalanche, a cataclysm, a mighty rush of many waters, multicolored streamers blossom open and spiral down, fireworks blaze, a *military band of 110 brasses plays La Marseillaise*, the ghosts of Joan of Arc and Charles de Gaulle descend in glory and in light . . . and one looks down into the bowl to see what has happened. And one sees that nothing has happened. Nothing at all. Nothing. . . .

The Universe, it would seem, was not drawn up to my specifications. I've suspected as much for quite some time now.

So we must console ourselves with what little philosophy we have with what little result it brings. Of course, we can always give up on it and take up bridge or golf or surf the Internet.

Boethius, on the other hand, wrote his *Consolations of Philosophy* in 524 A.D. while in prison awaiting execution. He decided that as God could do no evil, evil did not exist and that happiness but not mere pleasure should be the aim of the wise. "In wise men there is no place for hatred," he concluded. Bertrand Russell wrote that during the two centuries before Boethius and the ten centuries after him no other European man of learning was as free from superstition and fanaticism. It is no bad epitaph for a philosopher.

But if we believe it is a good thing to go beyond philosophy, to science, mathematics, and logic, then we cannot stop with Boethius, as much as we might like to.

We know that science is a construct of men and women. But what about logic and mathematics? Are they invented by us or are they inherent in the cosmos and discovered by us and then formalized into our own rules and regulations, so that at first glance it looks as though we invented them and they have no existence beyond us, our minds, our formalisms. I think that the more we consider the two possibilities the more we are driven toward the latter view. The Universe is too ordered, too mathematically organized for this to be coincidental. The physicist Eugene Wigner writes about the "unreasonable effectiveness of mathematics" in understanding how our Universe works. I think of mathematics as one form that logic takes and so I think of logic as existing outside us but which we can, sometimes, to some extent, tease out. The Universe obeys laws, if only the laws of probability, and the laws of probability are determined, fixed, inviolate, whatever the particular, individual case may be. These laws must be self-created and self-maintained. A tendency toward ever-evolving complexity in things seems to be part of this general, overarching principle, something we glimpse in the original, Greek meaning of *cosmos* as order and system, harmony and method. I refuse to believe all this is merely philosophy; I believe it forms the bedrock of science, that it is the most important job of scientists to discover this basic, underlying foundation of all things and all existence. Otherwise we are left with the nonsenses of Copenhagenism, many-worlds, and all that rubbish, which is where we wallow now.

We know what the stars are, we need not look up at them to know that the Universe is an incredible thing. Incredible things are not to be worshipped, though they are to be revered. And they are to be understood for what they are and how they came to be.

And it is science, and not philosophy, that may, just possibly, take us there. So let us not delude ourselves, or if we must delude ourselves, then let us delude ourselves with something more worthwhile. □

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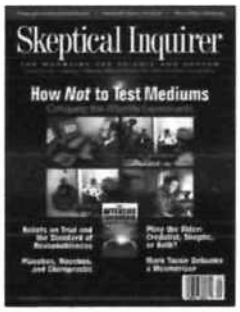

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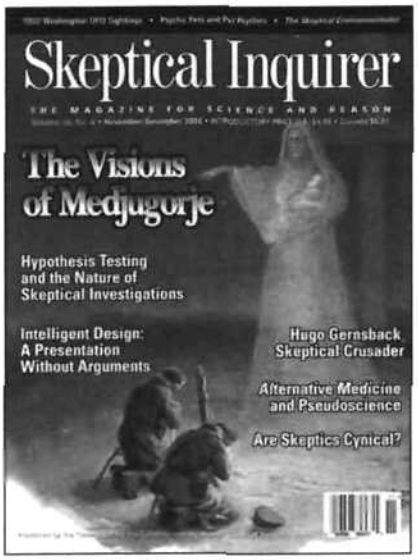
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Medjugorje Mary Apparitions

I enjoyed the article on the alleged apparitions of Mary in the November/December 2002 issue. However, I was surprised that the author never referred to Sandra L. Zimdars-Swartz's voluminous book *Encountering Mary*. Although this book is hard to find, it is the most detailed sociological account of the various Marian apparitions available. This book is extensively referred to by Joe Nickell in *Looking for a Miracle*, which *did* appear in the author's bibliography.

Jonathan Harvey
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Young female (and male) rustics have been seeing strange people for quite some time. Before the rise of Christianity, what they saw was a local goddess and the place became a shrine. After the rise of Christianity, what they saw was (appropriately enough) the Virgin Mary—and the place became a shrine. Are we really to believe that *all* of these manifestations were the result of "the broadest social forces"? Is it not more likely that they are the result of newly active hormones affecting their perceptions?

The appropriation and use of these appearances by the nearest power structure willing to use it is hardly unusual or unexpected. I have no doubt it has happened many times (if not every time) in the past. I do find it amusing that the Virgin Mary was somehow used as a weapon against the Eastern Orthodox. Muslims, perhaps; but Orthodox Christians—I'm not doubting that it happened, but that was quite a trick.

Paul Person
Seattle, Washington

Testing Hypotheses

I have one clarification that I think needs to be added to the points made by my good friend Massimo Pigliucci in his fine article "Hypothesis Testing and the Nature of Skeptical Investigations" (November/December 2002). In discussing the p-values used in frequentist statistical analysis he mentions that a threshold of 0.05, or 5 percent, is commonly used to decide when an effect is statistically significant. He rightly criticizes this as inadequate and urges that other statistical methods be used. I agree wholeheartedly. The 5 percent threshold implies that every twenty or so published experiments is nothing more than a statistical artifact. Unfortunately, this is the threshold used by most journals in medicine, psychology, and parapsychology. No wonder they generate so many spurious results that are never replicated.

However, I want to point out that no respectable journal in physics would ever publish a result, and no self-respecting physicist would ever claim a new phenomenon, that is significant at only the 5 percent level. The standard for physics journals over many years now has been a p-value of 0.0001. This means that in a long sequence of identical experiments we would expect to observe an effect as great or greater produced by statistical fluctuations in only 0.01 percent of the cases.

While such a low publishing standard as p = 0.05 may be justified for ordinary results that do no overturn established science, it is totally inappropriate for extraordinary claims like ESP or the healing power of prayer and the SKEPTICAL INQUIRER should take a stand on this. Almost any sort of nonsense can be published if all it takes is twenty experiments to find one that where a statistical fluctuation produces the supposed effect. Rarely are any of the nineteen that show *no* effect published.

Vic Stenger
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Visiting Fellow in Philosophy, University of Colorado

Professor Pigliucci is correct to point out that a test of a precise null hypothesis can be misleading. If there is even a small amount of bias in the data, then the p-value will be tiny when the sample size is large, but this should not be interpreted as evidence against the null hypothesis. The problem is that, due to unforeseen bias, the "scientific null" (there is no telepathy) does not correspond to the "mathematical null" (some parameter is equal to some particular value). We are thus testing the wrong hypothesis. Professor Pigliucci does a great service to point this out. However, this has nothing to do with classical (or frequentist) statistics versus Bayesian statistics. The solution is to test an interval hypothesis instead of a point hypothesis. This can be done in a classical or Bayesian framework. Classical and Bayesian methods are tools; both can be used or misused. Neither is a panacea.

Larry Wasserman
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I would like to thank Massimo Pigliucci for his interesting article, I do, however, have some nits to pick.

Pigliucci refers to parapsychological studies with low p-values alleged to demonstrate psi. The problem there is, however, not with standard statistical procedures nor with the notion of a "null hypothesis." Parapsychologists are correct to reject the hypothesis that "it happened by chance"; where they go wrong is in assuming that this is the same as rejecting "it happened by non-psychic means." Pigliucci explains well how small mistakes and asymmetries in a complex experimental environment can give marginal deviations from chance expectations. However, this critique of experimental parapsychology is independent of any particular school of statistical methodology (see chapter six in my book *The Ghost of the Universe*). Parapsychologists have been misinterpreting their statistics, while Pigliucci implies that the fault lies with standard statistical inference.

Pigliucci further argues that science will benefit from adopting a Bayesian approach. I doubt that switching sides in the fiery but inconclusive debate between orthodox and Bayesian statisticians would change much in practice. A Bayesian approach has some advantages, but it also suffers from severe difficulties of its own; most famously the arbitrariness of priors and "false precision" in probability assignments." More importantly, no matter what the school of statistics, statistical inference remains something of an art, because a crucial aspect of the work is always choosing an appropriate statistical model—something not given by any set procedure. Even Bayesian parapsychologists could easily make the same old mistakes, if they chose inappropriate models, *and continued to mischaracterize the* "It happened by normal means" hypothesis.

Taner Edis
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The underlying issue of the [Pigliucci] piece is valid. Briefly stated it is that statistical evidence for the rejection of a particular model, A (the null-hypothesis), should not be considered as compelling evidence of a particular alternative model, B, unless all other alternative models are less reasonable than model B.

This issue, however, is a fundamental issue, and has nothing to do with the distinction between Bayesian statistics and frequentist statistics (or "standard statistics" as Pigliucci calls it). It also does not indicate any "problem" with p-values.

Presenting this topic in the form of competing statistical conceptual frameworks and talking about the need to have the "textbook-entrenched standard approach [...] dissipate," is misleading and quite simply wrong.

Another misleading feature of the piece is singling out for praise a specific statistical technique—likelihood ratios—and even a specific formula. This gives the impression that the issue is about math. It is not. The issue is about using common sense and keeping a skeptical mind. No amount of math can be a substitute for that.

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Massimo Pigliucci replies:

I am very glad to see that my article on hypothesis testing generated so much attention and debate, which I think can only benefit both the scientific and the skeptical community. Let me begin by apologizing for my apparent lack of clarity on one fundamental point, which seems to have generated most of the confusion: I am not claiming that Bayesian analysis is a panacea in statistics. What I discussed in my article are *three distinct* problems, which should not be collapsed into one: first, the fact that statistical null hypotheses often do not coincide, or are not informative about, scientific null hypotheses; second, that p-values do not measure quantities that are particularly relevant to statistical inference; third, that a Bayesian framework for thinking about hypothesis testing is both philosophically and practically better suited to scientific investigation than the standard Fisher-Pearson-Neyman framework.

As far as p-values go, it is certainly true that physics journals set their (still arbitrary) threshold much lower than the 0.05 level typical of biological or social sciences. However, there are two problems that such a move does not solve: first, p-values are still measuring a quantity that is not of great interests to scientists (i.e., the cumulative probability of the observed data *or of more extreme outcomes* to be observed given a certain hypothesis, while we really wish to know the likelihood of a certain hypothesis given the observed data); second, as elegantly demonstrated by Hedges (1987), it turns out that the apparent precision of some experiments in physics (judged by the very narrow confidence intervals of the published estimates, for example), is more illusory than we might wish to think: repetition of the same experiment (e.g., two sets of data on the thermal conductivity of gadolinium) yielded equally "precise" estimates and narrow confidence intervals, and yet the second set of values was many times outside of the confidence interval of the first one!

About the merits and problems of Bayesian analysis, there is obviously no space here to address the question, which has generated a large literature and an ongoing debate. However, it is worth noting that the problem with arbitrary priors has been over-emphasized, since there are very good solutions to it, as well as evidence that even if one starts with arbitrary priors, one eventually does likely converge on the true ones, given enough rounds of experiments (Howson and Urbach 1991). Incidentally, my choice of the likelihood ratio was not entirely arbitrary, since it is the most commonly used alternative to the standard approach, and the particular formula I gave for calculating it is one of many mathematically equivalent ones (Dixon and O'Reilly 1999).

Concerning the mistakes of parapsychologists, I certainly agree that they are not confined to misapplications of statistics. However, my point was that often enough even professional scientists do slip, more or less subconsciously, and make the mistake of considering the rejection of a null hypothesis as equivalent to the acceptance of a particular alternative hypothesis. This is a good area where Bayesian analysis is useful, not because one couldn't avoid the problem within the standard approach, but because Bayesianism *forces* the investigator to spell out all the alternative models being considered.

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Ecological Activism and the Bounds of Science

I take umbrage to Vojtech Mornstein's inclusion of ecological activism as an example of the "mixture of pseudoscience with legitimate results" ("Alternative Medicine and Pseudoscience," November/December 2002 pp. 40–43). He uses global warming as an example of this pseudoscience/legitimate science mixture by stating that "activists argue that carbon dioxide causes measurable greenhouse effect, but . . . ignore the existence of natural temperature oscillations." This is absurd. No atmospheric scientist ignores the historical temperature record, just as no atmospheric scientist doubts that CO_2 is a significant greenhouse gas. The current debate is not if human-produced CO_2 is contributing to global warming via the greenhouse effect, but at what level. The majority of scientific opinion has concluded (see the Intergovernmental Panel on Climate Change, www.ipcc.ch/) "the balance of evidence suggests that there is a discernible human influence on global climate." This conclusion was reached after exhaustive study of all known natural variability. The synopsis of the IPCC report is "In the light of new evidence and taking into account the remaining uncertainties, most of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations." I think the example would have been more meaningful if he used the Bjorn Lomborg *The Skeptical Environmentalist* crowd (discussed in Richard Fisher's review in the same issue) as the community that mixes "blind faith (and) legitimate results" instead of ecological activists.

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Department of Earth and Space Sciences, UCLA
Los Angeles, California

As skeptics, we have an obligation to examine ourselves with the same rigor we happily apply to others. The author does an adequate, if obvious, job of dismissing alternative therapies; and then, in what seems almost an addendum, includes two areas "on the boundaries of science" in the second of which, ecological activism, he abandons reason. He states that they claim that carbon dioxide causes a measurable green house effect (true) but ignore the existence of historical fluctuations in temperature (unsupported and probably untrue). So what! No internal contradictions. No point made, just the suggestion that this is more of the blatant silliness he has previously

discussed. Then he extends guilt of wrong-thinking by association to animal rights people. In the next sentence he makes it clear that he is an animal rights person himself, just not a member of the most extreme wing.

Then we learn that the same silly crowd opposes genetic manipulation ignoring the fact that for millennia we have done this through selective breeding, leaving out that this was historically done with the filter of interspecies incompatibility which has been removed through gene-splicing technology (which one guesses is close to where the author's bread gets buttered). Finally he identifies these soft-headed wrong thinkers as members of the anti-nuclear movement "protesting the deleterious effects of ionizing radiation." Not so.

Many people protest the deleterious effects of undeniably lethal by-products of nuclear power plants with half-lives in the thousands of years that we lack the technology to rid ourselves of. He than lumps himself with them (!) but declares that he sees this as a temporary, necessary evil, reducing this whole section to a difference on a judgment call.

As skeptics we should be comparing what we know based on scientific methodology to what people claim to know through faith based systems.

Let's not attach riders with our favorite untested opinions to our theses; it weakens our position.

Gustave Danzer
Alameda, California

Vojtech Mornstein is mistaken when he places the vegan diet in the same category as homeopathy and urine consumption. The vegan diet is "based on real knowledge about the body," does not "cause lack of some amino acids or vitamins," and, when properly followed, is "beneficial for health."

In fact, it is modern medicine and nutritional science that make a vegan diet possible, because they have identified the nutritional components necessary for maintaining optimal health. . . .

Randall Mautz
Missoula, Montana

The article by Vojtech Mornstein was well reasoned until he listed ecological activism as a pseudoscience near the end of his article. Maybe in the Czech Republic his supposed arguments are made by activists but it doesn't seem true here. It has already been concluded that CO_2 does indeed cause warming, even though there is still uncertainty in the exact amount and natural temperature oscillations have been considered. Most animal rights activists indeed do fight against killing for entertainment and for furs as he states and against physically injurious testing for cosmetics, etc., but not against testing for curative drug development. In Oregon we have an initiative on the ballot to ban genetically engineered food products that would prevent splicing in fish or animal genes or pesticides into foods but doesn't restrict normal breeding of plants. . . .

Paul Cornett
Florence, Oregon

Vojtech Mornstein responds:

When I wrote about "ecological activism," I surely did not refer to any evidence-based science. At least in our country [Czechslovakia], the "ecological activists" are mainly young people with poor education in natural sciences who are not able to assess the differences between hypotheses and proven facts. However, when there is a discussion about the level of temperature increase caused by greenhouse gases, it is difficult to understand the statement, "In the light of new evidence and taking into account the remaining uncertainties, most of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations." I saw some temperature change plots which do not seem to differ from those measured in previous decades. In spite of these problems I would like to underline that I did not criticize the *scientific* approach to the above-mentioned problems.

In the last chapter of my article I briefly introduced some related areas of pseudoscientific thinking without detailed argumentation. I am no "animal rights person," because I think rights are a human invention, which can be applied only to the social life of humans. To avoid killing of animals for mere entertainment is not the same as to say: "No experiments on animals!" without saying what or who should be the substitute testing object. In case of genetic manipulation, I do not underestimate dangers connected with that. Any invention can be dangerous in a certain sense. It is dangerous to drive cars, fly by airplane, to perform many sports—all these activities are life-threatening. However, who was killed by genetically manipulated foods, e.g., by rice containing Vitamin B? These products are used after long term testing. I worry, in addition, that viruses can break the interspecies incompatibility as well. I have also nothing to do with genetic technologies—I am a biophysicist dealing with biological effects of ultrasound.

I cannot agree with Mr. Mautz, except his objection to the placement of vegan diet in the same category as urine consumption. It is my mistake that it made such an impression. Humans are adapted to food containing animal proteins, fatty acids, and some essential compounds which are not or only little present in plants. The vegan diet lacks Vitamin B12, at least. The claim that these diets can be beneficial for health does not mean automatically that these are the best ones for our health. Some components of the vegan and fruitarian diets are frequent causes of allergies, but allergy caused by pork or chicken meat is rarely if ever encountered. I acknowledge that my remarks are not proper arguments, but I submit they are worth considering.

ID's Infinite Regress

Mark Perakh's article contesting William Dembski's formulation of Intelligent Design (ID) was well argued ("Presentation Without Arguments: Dembski Disappoints," November/December 2002). But apart from *the theory's complete lack of evidence*, ID, being an old argument under a new guise, is also plagued by a more fundamental logical flaw—namely the infinite regress. Let's first state Dembski's obvious premise: Specified complexity (i.e., improbable complexity exhibiting a specific pattern) implies Intelligent Design.

The flaw, here, is that not only do intelligently designed artifacts exhibit specified complexity, but the attribute of intelligence itself exhibits specified complexity (i.e., it exhibits a specific pattern), even a disembodied intelligence such as a deity. Therefore, according to our premise above, all intelligent designers (thus exhibiting specified complexity) imply further intelligent design, and those designers before them, ad infinitum (which explains nothing).

As a reply, an ID theorist might abandon logic for arbitrary personal preference and claim a particular intelligent designer as a sufficient First Cause (following St. Thomas Aquinas). But utilizing Occam's Razor, one could just as well claim the universe itself as a sufficient First Cause.

These arguments, I'm sure, are not new, but if they're not effectively dealt with by Dembski and other ID proponents, then ID will remain an untenable theory.

Rui Vieira
Mississauga, Ontario
Canada

Coin-Flip Odds

We have to agree with most conclusions in Phil Mole's piece "Are Skeptics Cynical?" (November/December 2002). However, Phil Mole is no statistician, and his statistical examples on pages 45 and 46 are incorrect. The statistical method that has to be applied in such cases is the "binomial formula." Indeed, it confirms our commonsensical expectation that if we flip fair coins, then an outcome close to 50 percent head and 50 percent tail is much more probable than numerous heads or tails in one row. The exact probabilities can be easily calculated from the binomial formula, or can be looked up in binomial tables found in many elementary statistical textbooks. The binomial formula is somewhat similar to that used by Phil Mole, but with the inclusion of the so-called binomial coefficient. In Phil Mole's examples these probabilities are:(1) 0.2461, (2) 0.0098, a 25-times difference, and (3) 0.2734, (4) 0.0312, an almost 9-times difference in probabilities. Those who chose (1) and (3) as being the most statistically likely are really in good company.

George K. Nagy
Albany, New York

Psychic Pets and Pet Psychics

In "Psychic Pets and Pet Psychics" (November/December 2002) Joe Nickell claimed that: "Rigorous experimental protocols designed to exclude normal explanations (such as sensory cuing) tend not to show evidence for psi" in pets.

I have carried out more than 100 videotaped trials with a dog that seemed to know when his owner was coming home. I found the dog waited at the door when his owner was homeward bound. He began waiting when she was over five miles away, and when no one at home knew she was returning.He did it when she returned at randomly selected times. He behaved in the same way when she traveled in taxis, ruling out sensory cuing from familiar car sounds or smells (*Journal of Scientific Exploration* [2000] 14, 233–55).

At my invitation, Wiseman et al. carried out four tests with the same dog, using similar methods. In my own randomized tests, the dog was at the door an average of 4 percent of the time when his owner was absent, and 55 percent during the first ten minutes of her return journey ($p = 0.0001$). In Wiseman et al.'s tests the respective figures were 4 percent and 78 percent ($p=0.03$). Wiseman replicated my findings, ignored my data, and then discarded most of his own, to arrive at a standard skeptical conclusion. Nickell repeats his claim uncritically. More details at www.sheldrake.org.

Rupert Sheldrake
London, England

Richard Wiseman responds:

Sheldrake claims that my tests of an allegedly psychic dog support the existence of animal telepathy. They do not. We conducted four experiments with the dog. In each study we examined the claim that the dog's first visit to a certain door in his owner's house would coincide with his owner setting off to return home from a remote location. On each occasion the dog failed to accurately signal his owner's return. Sheldrake later reanalysed the data, noting that the percentage of time the dog visited the door when his owner was returning home was much greater than when his owner was not returning home. However, this pattern could easily arise if the dog did very little for some time after his owner left home, and then began visiting the door more often, and for longer periods, the longer she stayed away. Thus the pattern Sheldrake describes is not evidence for telepathy, as it could easily be an artefact of the dog's natural waiting behavior. Readers can find further details about my original experiments, and subsequent debate with Sheldrake, in The British Journal of Psychology *(vol. 89, pages 453–462, 1998) and the* Journal of the Society for Psychical Research *(vol 64, pages 46–50, 2000).*

Joe Nickell's column on pet psychics reminded me of an incident that occurred here in Sacramento last spring. Carol Gurney, an author on communication with animals, came through town touting her book. One of the local residents opened her home for two nights for locals wanting to talk with Ms. Gurney and were charged $140 for one day or $275 for two days to talk about Ms. Gurney's "Heart Talk" program.

Gurney's theories about the telepathic powers of people and animals were prominently covered in the *Sacramento Bee.* In the interest of "fairness," a short piece from a veterinarian from the University of California, Davis was included in the article. Dr. Tynes was quoted as saying, ". . . it doesn't stand up to scientific scrutiny. It's especially scary when people go through these communicators rather than someone who can actually diagnose a health problem that might be responsible for certain behaviors." The pet psychic, after admitting that she was "no substitute for a veterinarian," immediately began giving anecdotes about how successfully she telepathically communicates with animals.

I wrote a letter to Cynthia Huburt, the author of the article, expressing my disappointment that the *Bee* was devoting a portion of its newspaper to tabloid journalism as opposed to a higher standard of journalistic truth. As many readers of SI know, the media often purport to offer balanced articles by interviewing a token skeptic. This typical balance was glaringly evident in this article. Of the 188 lines in the article, only 30 (about 15 percent) presented the skeptical viewpoint. My dismay and disappointment prompted the following response from Ms. Hubert.

> Lighten up, pal. This was a feature story about a woman who's sold many books and raked in big bucks based on her theories. It's our job to report on things that people are reading, buying, and talking about, regardless of whether or not we share the views presented. Some people don't believe in Jesus Christ, but that doesn't mean we don't report on the Christian faith. All we can do, as responsible journalists, is try to report all sides, which is evident here. By the way, features on this woman have been published not only in the *Bee* but in the *Washington Post, Good Housekeeping, Utne Reader,* and many other respected newspapers and magazines. Do they fit your definition of tabloid journalism as well? Thanks for your note. Cynthia.

Readers of SI now have a new working definition of responsible journalism.

Terry Sandbek
Sacramento Skeptics Society

No Such Obligation

Though I share Kendrick Frazier's irritation about such lousy programming as "Atlantis in the Andes" and other gobbledygook (Editor's Note, November/December 2002), I must disagree with his assertion that "The Learning, Discovery, and History channels have an obligation to present claims and issues objectively and with some sense of critical evaluation of suspect claims, not just to titillate and entertain without regard for scientific evidence." Well, sad as it is, they have no such obligation. They are private enterprises and their only obligation is to bring profits to their shareholders. That is how the market works in real life. Now, if people would stop looking at those preposterous programs, that would be another story. But how likely is that to happens ? Not very, if you ask me. . . .

André Pelchat
Victoriaville, Québec
Canada

The Skeptical Environmentalist

Richard Fisher's review of Bjorn Lomborg's *The Skeptical Environmentalist* (November/December 2002) reads like a *crie de coeur* of a desperate Green. Most of his article is simply an overview of the negative critiques by others. The main Fisher argument against the book is that the author is a statistician rather than a scientist. Still, it is just by statistics that we can judge the success or failure of environmental measures taken as a result of scientific claims. . . .

Nowhere does Fisher cite any mistake in Lomborg's findings; his critique consists of a general condemnation without samples to prove the point. Lomborg is said to engage in ad hominem attacks and as an example Fisher cites the statement that "there are many grants at stake." To call that finding an ad hominem attack seems like a logical somersault. . . .

Bo Thott
Cutler, Maine

To say Fisher's review was unfair to a fine piece of work is an understatement. In his attack, which is what it is, Fisher employs most of the logical fallacies he accuses Bjorn Lomborg of, and adds a few of his own. Primary among these is:

• *Outright falsehoods.* For example, Fisher makes a big deal out of Lomborg's supposed straw man argument of 40,000 species a year being driven to extinction. According to Fisher, Lomborg states "this is a figure which with monotonous regularity has been repeated everywhere until in the end we all believed it." After criticizing Lomborg for using a figure from a 1979 study, Fisher glibly responds "It hasn't and we don't." I paid a visit to a few environmentalist group web sites on November 23, 2002, and found the following:

Sierra Club: "Roughly 50,000 species vanish every year."

Greenpeace: "Half of the world's biological heritage is threatened with extinction."

World Wildlife Fund: "Scientific research tells us we are losing species at a rate unknown since the dinosaurs became extinct more than 60 million years ago."

Sounds like Lomborg was pretty accurate to me.

• *The ad hominem fallacy.* "Lomborg . . . courts the attention of the media."

• *Appeal to authority.* ". . . rebuttals by a coterie of scientific heavyweights."

• *Guilt by association:* "[the book gets] positive gushes from the popular press."

Add to this is simple name calling (baloney detection kit) and it's easy to see that Mr. Fisher has an axe to grind.

Any objective reader of *The Skeptical Environmentalist* will conclude that the work makes a significant contribution to science and reason in the debate over the environment. The book presents data in the proper statistical context and shows the extent to which the environmentalist community has lied and exaggerated to win political battles.

Thomas Pyzdek
Tucson Arizona

Lomborg never claims in his book that there is not a serious environmental problem. His position is that we are unlikely to define the problem, let alone solve it, by sloppy science and fuzzy thinking. Spending money on imaginary problems is worse than not spending at all: it lulls us into false security and it does not identify and address important, real problems. There is a long list of imaginary problems that have cost an enormous amount of time and money to address and without any result except for serious credibility problems. These issues include asbestos, Alar, Love Canal, acid rain, and silicone breast implants. The U.S. taxpayer has spent $1 billion on acid rain alone and identified several small lakes in upper New York State that may have a problem. Lomborg does us all a service by pointing out certain shibboleths that inflame the popular imagination and that are patently incorrect, some even absurd. Fisher appears to believe that exaggerating the environmental problem is a virtue. . . .

William C. Harvey
Dallas, Texas

Richard Fisher responds:

The published responses to my review of Lomborg's book seem to have missed a central point in my argument. Environmental organizations like Greenpeace are in fact highly politicized. Any claims that they make should be subject to healthy dose of skepticism, as should claims made by pro-development organizations that cloak themselves in supposed impartiality. But that same skepticism need not necessarily extend to the underlying scientific studies that the competing sides cite in support of their respective positions in the environmental debate. For the anti-environmental lobby in particular, it's a case of "please don't shoot the messenger." But that is precisely what Lomborg tries unsuccessfully to do, by attacking scientists, using a variety of anti-science tools. In contrast to what Lomborg would have us believe, scientific research is predicated upon extensive and robust scrutiny at all stages of inquiry, from initial research proposals, to applications for funding, leading to the impartial evaluation of results (for example, in the case of graduate student oral examinations), and ultimately to the publication of studies, after further external review. The amount of coverup that would be required to create and maintain a worldwide green conspiracy involving environmental scientists, students, and the institutions to which they belong, beggars belief. The notion is ludicrous. Consequently, we need to move on from Lomborg's delaying tactics, and together ensure that adequate resources are committed to avoid, remedy, or mitigate the past and present adverse effects of our activities on the environment.

Estling on Positivism

Ralph Estling made some very good points about positivism in his Forum column in the November/December 2002 issue. My experience is that too many people of a skeptical bent adopt positivism because they feel safer talking about just their observations rather than about "reality," perhaps because so many philosophies have twisted that simple word into strange forms.

Quantum physics is complicated and often counterintuitive, so it's no wonder that physicists find it easy to let mathematical models take control of their discussions; there often just isn't any other language available. But this has led to neglect of questions such as what the "wave nature" of particles is a wave in; too often we hear that as long as the equations are satisfied, everything has been explained. These aren't easy questions, and the näive postulation of an otherwise undescribed "ether" doesn't answer them. But the work of science is incomplete if it neglects them.

The Ptolemaic model of the solar system provided a fairly accurate description of planetary movements, but it worked without any notion of the underlying cause, the gravitational attraction of the Sun and planets. The identification of the reality behind the model allowed scientists to create a better model.

Gary McGath
Hooksett, New Hampshire

You simply have to love Ralph Estling. What a delightful writer!

Jerry O'Donnell
Artesia, New Mexico

Calculating God, Still?

I was astonished to see that SI is still talking about my science-fiction novel *Calculating God* (using its latest letter column [November/December 2002] to essentially assert, "See, we were right all along!"). But let's look at lines from another science fiction novel: "The universe was made on purpose. . . . In the fabric of space and in the nature of matter, as in a great work of art, there is, written small, the artist's signature . . . there is an intelligence that antedates the universe."

Clearly, this is creationist propaganda masquerading as fiction, right? Maybe so—but the author is Carl Sagan, and the novel is *Contact*. Nor are these obscure references buried in the text, and, unlike Barry F. Seidman, in his ridiculous "review" of my book that started this discussion, I am not quoting dialog without mentioning that it *is* dialog; the words above are straight narration given pride of place on the very last page of Sagan's novel—they are the concluding statement of his book.

Christian Fundamentalism looks ridiculous when it attacks works of fantasy, such as the *Harry Potter* series, for supposed promotion of a belief in non-divine magic; Skepticism looks equally ridiculous when it attacks works of science fiction—even more so when the attacks are selective, ignoring the writings by those it identifies as being by "one of us" while shouting down supposed apostates.

Robert J. Sawyer
Toronto, Canada

Finding a Skeptic?

The letters published in response to "Who Abused Jane Doe?" and "The High Cost of Skepticism" revealed a wide range of reactions (November/December 2002).

One reader called the Jane Doe article a "detailed review." Others either totally agreed with the High Cost article, found it a "shocking" report, or defined First Amendment rights.

Then there was the reader who responded to the Jane Doe article with: "Readers are no more able to assess the accuracy, balance, and validity of their [Loftus and Guyer's] work than were the readers of Corwin's work."

How refreshing to find a skeptic within the SKEPTICAL INQUIRER readership.

Lynn Crook
Richland, Washington

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An Old Star *Gives Up the Ghost*

NASA's Hubble Space Telescope has recently obtained images of the planetary nebula NGC 6369. This object is known to amateur astronomers as the "Little Ghost Nebula," because it appears as a small, ghostly cloud surrounding the faint, dying central star.

Credit: NASA and The Hubble Heritage Team (STScI/AURA)

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